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THE EFFECTS OF WORD-RELATEDNESS ON LEARNING.

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THE PURPOSE OF THIS RESEARCH WAS TO EXAMINE THE EFFECTS OF SEVERAL MEASURES OF WORD-RELATEDNESS ON SEVERAL VERBAL LEARNING TASKS--PRIMARILY PAIRED-ASSOCIATES LEARNING AND VERBAL DISCRIMINATION LEARNING, WITH INCIDENTAL ATTENTION GIVEN TO FREE RECALL AND SEMANTIC GENERALIZATION. THE STRATEGY WAS TO SELECT A SAMPLE OF WORD PAIRS (240 COMMON NOUNS ARRANGED INTO 120 PAIRS TO REPRESENT A VARIETY OF JUDGED RELATIONSHIPS) AND THEN TO STUDY THESE PAIRS EXTENSIVELY IN A VARIETY OF EXPERIMENTAL TASK SITUATIONS. PAIRED-ASSOCIATES LEARNING AND VERBAL DISCRIMINATION LEARNING SCORES WERE DETERMINED IN TWO EXPERIMENTS. THE INTEREST WAS IN ACHIEVING A STABLE SCORE FOR EACH PAIR. TO DO THIS A GROUP STUDY-TEST PROCEDURE WAS DEVELOPED AND USED WITH APPROPRIATE MINOR CHANGES IN BOTH EXPERIMENTS. EACH PAIR APPEARED IN FIVE DIFFERENT 60-ITEM LISTS. EACH LIST WAS PRESENTED TO AN INDEPENDENT GROUP OF SUBJECTS FOR THREE TRIALS. THE LEARNING TASK SCORES WERE CORRELATED WITH ALL OF THE VARIABLES DESCRIBING ASPECTS OF THE STIMULUS MATERIAL. THE MAJOR INTEREST WAS IN COMPARING THE PATTERNS OF CORRELATION FOR THE TWO EXPERIMENTS. SEVERAL MAJOR DIFFERENCES WERE FOUND. PAIRED-ASSOCIATE PERFORMANCE CORRELATES SUBSTANTIALLY WITH THE MEASURES OF DIRECT ASSOCIATION WHILE VERBAL DISCRIMINATION PERFORMANCE CORRELATES NEAR ZERO. THE GENERAL CONCLUSION IS THAT PROPERTIES OF THE STIMULUS MATERIAL PLAY VERY DIFFERENT PARTS IN THE TWO TASKS. (AMM)

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SECTION I

Introduction

The study of simple learning using the techniques of rote verbal learning has a long history as an active enterprise. The number of research studies appearing in the literature continues to increase in pace. One sign of the increasing maturity of this aspect of psychology is the number of books and contributed chapters which provide theoretical integration of a large number of experiments (1, 3, 12, 28). These investigations can be sorted into two broad groups concerning (a) experimental parameters of the learning situation, and (b) parameters concerning the nature of the stimulus material--particularly the "natural" relationships among words. This second group of variables was examined in the research to be reported below. In all cases this material consisted of words which occur in normal language discourse as opposed to especially constructed nonsense items.

The stimulus variables typically studied in the area of verbal learning have been derived from the properties of words taken separately. Most prominently it has been found that a cluster of interrelated variables has a pronounced effect on verbal learning tasks. Included in this cluster are Noble's various measures of meaningfulness, Thorndike-Lorge word frequency, and ratings of familiarity and pronounceability (All of these are discussed in the general references cited above). A number of these measures have been utilized in the experiments. In addition, a number of direct measures were derived to assess the relationship between the two words that make up each pair of words used to construct the learning lists.

The importance of investigating this property of words can be illustrated by the word-pair "polly-cracker". Looking at these words individually in terms of meaningfulness and the related measures it might be expected that the paired-associates learning of "polly-cracker" would be relatively difficult for subjects. In fact, such a pair would be learned rather quickly--most probably in one trial. The particular relationship of these words in the natural language, perhaps because of the appearance in the expression, "Polly wants a cracker", results in facilitation of the learning of this pair. Many other examples could be given of word-pairs that individually are not high in variables known to influence verbal learning, but which prove to be easily learned in actual learning experiments. To the extent that joint properties of word-pairs can be measured directly, such measures may prove to be powerful explanatory devices in verbal learning and verbal behavior.

As well as including the study of word-pairs as units, these experiments depart from the customary strategies in one other important sense. Normally, stimulus material is constructed in the form of several lists, each list containing pairs at one level of the variable being investigated. For example, three lists might be used--one at high, one at medium, and one at a low level of meaningfulness. A subject then learns one of these lists over a series of trials. The number of pairs correctly anticipated on each trial per subject becomes the unit which is analyzed by a variety of statistical procedures. In these experiments, on the other hand, the *word-pair* is the focus of the analysis. A large number of subjects participated in each study so that a reliable performance score was obtained *for each pair*. It was these scores which were related to the various rating scale indices and association response heirarchies relevant for that pair. It is important to note, also, that the same items are employed in all of the contexts discussed above. This is a definite advantage in making meaningful comparisons.

Related Research

Numerous attempts to quantify the natural relationships between words are to be found in the recent verbal behavior literature. The most prominent approaches will be reviewed in this section. Particular attention will be given to recent review articles which summarize a good portion of the previous work. The references will not be exhaustive. A complete review would extend far beyond the limits of this report.

Perhaps the simplest and most direct measure is the frequency with which one word elicits another in a free association task. Two words are related if one evokes the other as a response. The magnitude of the relationship can be quantified according to the frequency with which one word elicits the other. This approach led to the systematic and extensive collection of normative data. One of the most complete is that of Palermo and Jenkins (22). Much work has been done using association strength as a variable. The results have not always appeared in the expected direction. Jenkins and his colleagues have demonstrated that pairs composed of low strength associates are learned as fast as pairs of high association strength in a paired-associates task (unpublished studies referred to in (13)).

Much has been learned about the verbal habits of subjects by varying (sometimes slightly, sometimes considerably) the conditions of the task, i.e., using various types of controlled association techniques. Cofer (2) discussed work with several kinds of restricted association tasks. Riegel (24) has collected a large number (sixteen) of types of restricted associations on a large sample of words (two hundred). He has been engaged in a program to describe a system of semantic classes and class-relations. Nunnally and Flaugher (18) have presented work showing that subjects have consistent semantic habits based upon their responses to a restricted kind of association situation--one in which there are binary choices for each item. Each of these variations has added new insights into the association process. Marshall and Cofer (16) have reviewed ten different measures of verbal relatedness based upon association. One of their concluding remarks is, "It is possible that many conceptual relations among words may be measured in terms of associative responses given under conditions of response restriction. Relatively little exploration has been made of this possibility to date, although results obtained so far are encouraging".

In their review Marshall and Cofer (16) cover a variety of other indirect measures of word-relatedness. Three of these indices may be considered as one cluster since they all depend upon some type of associative overlap. They differ in the specific ways that the separate response heirarchies of the two words are combined to produce the index of overlap. It is not necessary to review the details here. To be added to this list is a measure reported by Garskof and Houston (11). Their index of relatedness is more complex. It takes into account both the number and order of identical elements in the response hierarchies of the two words. Such a refinement does increase the predictive power of overlap indices in other verbal learning studies, but it is quite cumbersome.

Brief mention should be given to other indirect measures which have been proposed. Osgood, Suci, and Tannenbaum (20) have presented a measure of meaning which is a type of relatedness. The D measure expresses the similarity between two words, but has a limitation cited by the authors in the above reference. Two concepts that are denotatively distinct may be in the same location in semantic space. Here are two examples: "hero" and "success"; and "nurse" and "sincere". Flavell (9, 10) has presented several measures including judged occurrence as a predictor of judged similarity. Such a measure has the often quoted difficulty that two concepts such as Indian elephant and African elephant are highly similar, though they never occur together.

In summary, verbal relatedness has been studied with a variety of techniques. Many interesting facts remain to be discovered by examining untried methods.

Organization of this Report

The objectives of this research were: (1) to select a large number of pairs of words using lexical items from the English language. These pairs were judged to embody a variety of relationships between the two member words; (2) to collect rating scale plus free and controlled association indices on the individual words and on the pairs; and (3) to use these pairs in paired-associates and verbal discrimination learning experiments in order to assess the predictive efficiency of the indices obtained in (2).

The next section (Section II) will contain an account of the selection of the basic list of stimulus pairs. This will be followed by a discussion of the scales and association measures along with an outline of the methods employed in assembling the data. In each case the detailed procedures as well as the tables of scaled values and association hierarchies will be included in an appendix attached at the end of the report.

The methods and results of the paired-associates and verbal discrimination learning experiments will be discussed in Sections III and IV. These two types of rote verbal learning procedures will be compared and contrasted in Section V. Particular attention will be given to the contributions of the various stimulus parameters in the two situations. Several related experiments will be presented in Section VI. Two final sections contain the conclusions, implications and summary.

SECTION II

The Pairs, Scales, and Associations

The basic stimulus material was selected to include most of the common nouns in English. There are 240 separate items. These words were formed by the experimenters into 120 pairs representing a variety of possible relationships. A few examples are: (1) "city-town", which represents synonymity, (2) "friend-enemy", as opposites, (3) "grape-vine", where the response item completes the sequence, (4) "hat-coat", contains a stimulus and a response which frequently occur together in space, and (5) "ash-gin", which was judged by the experimenters to be unrelated in any systematic fashion. No attempt was made to include all of the possible ways one word may be related to another. This number is very large (possibly infinite). Most of the commonly used categories are represented by a number of pairs. A listing of the pairs, along with the code numbers that will be used in the remainder of this report, is given in Table 1. The order is alphabetical according to stimulus word.

In the first phase of the project this stimulus material was presented to large groups of subjects (freshmen and sophomores at Vanderbilt University) with instructions to perform a diverse array of rating and association tasks. A brief description of these measures follows. In each case reference will be made to the appropriate section of the appendix where a detailed account of the procedures, number of subjects, reliability data, etc. can be found.

Ratings of the Pairs

Four different dimensions were selected for study:

(1) Similarity of Meaning. Flavell (9) and others have discussed this global rating in theoretical terms; and it has been employed as a predictor in several settings. No specific definition of meaning is given. The instructions contained some examples and a seven-point scale. See Appendix B, Table B-1, Column 1.

(2) Co-occurrence of the Referents. This variable is included as an assessment of a more specific relationship. The question is, "How often do the objects referred to occur together in space?" Flavell (10) has used judged co-occurrence as a predictor of judged similarity of meaning. Thus, the correlations with this scale are of interest as well as the relationship with

TABLE 1

120 Word-Pairs With Identification Numbers

Pair	ID Number	Pair	ID Number
ANTLERS DEER	093	CARPET WOOL	009
APE MONKEY	042	CASTLE HUT	107
APPLE PEAR	100	CHEESE MOUSE	105
ASH GIN	113	CHILD KID	006
ATHLETE INVALID	029	CITIZEN RESIDENT	068
AX HATCHET	019	CITY TOWN	081
BABY BOTTLE	032	CLAW LOBSTER	092
BALL GOLF	007	CLOCK WATCH	038
BANDIT THIEF	104	CLOSET STOREHOUSE	053
BANKER BEGGAR	001	CLOTHING STORE	050
BED LAMP	041	CORN FIELD	114
BEE HONEY	011	COURT TENNIS	119
BOAT LAKE	003	CROCODILE ALLIGATOR	017
BOY MAN	034	CROWD MOD	048
BRICK CLAY	120	CURRENCY MONEY	045
BUG INSECT	055	DAGGER KNIFE	031
BULLET GUN	024	DIAMOND JEWEL	098
BUTTER OIL	030	DOCTOR PHYSICIAN	028
BUTTERFLY WORM	070	DOG CAT	091
BUTTON SHIRT	095	DREAM NIGHT	102

TABLE 1-- Continued

Pair	ID Number	Pair	ID Number
CAR AUTOMOBILE	036	DUST BOWL	089
EAGLE BIRD	033	HAT COAT	035
EMBLEM LABEL	073	HEAD ORGAN	002
ENGINE STEAM	010	HOUR MINUTE	097
FARM BARN	058	JAIL PRISON	079
FIG LEAF	099	JUSTICE PEACE	085
FISH TROUT	040	KING GOVERNOR	075
FOOT SHOE	014	LETTUCE TOMATO	020
FRIEND ENEMY	071	LIBRARY BOOK	057
GARBAGE CAN	066	LION TIGER	110
GENIUS MORON	103	LIP BACON	083
GERM MICROBE	052	LIZARD REPTILE	074
GIANT MIDGET	096	LUNATIC FOOL	023
GIRL SCOUT	080	MILK MAID	116
GLOVE PEOPLE	077	MINNOW WHALE	022
GOD DEVIL	111	MOON STARS	013
GOOSE DUCK	094	MORNING DAWN	061
GRAPE VINE	087	MOTHER SISTER	101
GUN TRIGGER	117	MOUNTAIN HILL	084
HAMMER SAW	025	NEEDLE RECORD	039
HAND FINGER	086	OCEAN SEA	046

TABLE 1-- Continued

Pair	ID Number	Pair	ID Number
HARBOR SHIP	090	ORANGE FRUIT	037
OYSTER SHELL	106	STEP BROTHER	112
PAINT BRUSH	060	STOVE COFFEE	018
PAPER PENCIL	051	STREET ROAD	063
PEARL NECKLACE	059	SUMMER CHURCH	118
PEN INK	008	THUNDER STORM	056
POT PAN	005	TOBACCO SMOKE	108
PRIEST MINISTER	064	TURTLE RABBIT	078
RADIO TELEVISION	109	TYPEWRITER RIBBON	049
RAIN BOW	067	WAFFLE SYRUP	047
RIVER BRIDGE	044	WEDDING RING	027
ROOM CEILING	076	WHISKEY PARTY	065
ROSE THORN	054	WINDOW FROST	072
SAINT SINNER	015	WOMAN SKIRT	088
SALT PEPPER	012	WORKER LOAFER	016
SHEEP MEADOW	082	YOLK EGG	115
SINK KITCHEN	062		
SNAKE PIT	021		
SOAP WATER	004		
SOLDIER RIFLE	026		
SPIDER WIDOW	043		
STAMP ENVELOPE	069		

the learning scores discussed below. See Appendix B, Table B-1, Column 2.

(3) Ease of Learning. Subjects were instructed to rate the ease with which they judged they would be able to learn the pairs if the pairs were presented by the usual paired-associates anticipation method. The major comparison here is with the obtained scores in the experiment. The expectation is that there will be a substantial correlation between judged and actual performance. See Appendix B, Table B-1, Column 4.

(4) Syntactic Co-occurrence. This is one of the specific types of meaning variables that has not been studied. Since nouns are lexical items from the grammar as well as the names for objects, they occur together in written and spoken sentences. This aspect may or may not be highly correlated with the co-occurrence of the referents. Since the words are used in the learning experiments in the printed form (as lexical items), this measure may be important in predicting the performance values. See Appendix B, Table B-1, Column 3.

Ratings of the Individual Words

Four additional rating scales using the individual words as items were administered to independent groups of subjects. A brief description follows:

(1) Meaningfulness. This is perhaps the most basic rated dimension. The instructions used in this scaling were patterned closely after those reported in Underwood and Schulz (28). This reference, cited above, gives a complete and detailed account of the experimental and theoretical implications of meaningfulness. Procedures and results can be found in Appendix A, Table A-1, Column 1.

(2) Imagery. As with the pairs considered above, a global measure is important, but there is also need for more specific judgments. Rated imagery is one such variable. The impetus for its inclusion in this research program was the work of Paivio (21). He studied the paired-associates learning of concrete and abstract nouns using pairs formed of the various combinations of the two types. The concrete-concrete pairs were most easily learned and the abstract-abstract pairs most difficult. Part of the explanation centered around the rated ease with which the words aroused sensory images. Paivio's pairs were limited in the variety of relationships between the two words. In this study rated imagery will be related to the paired-associates and verbal discrimination learning scores for the diverse 120 pairs. See Appendix A, Table A-1, Column 2.

(3) Evaluation. A great deal of research has been inspired by the studies of connotative meaning reported in The Measurement of Meaning (20). This rating of evaluation is designed to assess the dimension that has repeatedly been found to account for the largest proportion of variance in measures of connotative meaning. The essential element of the instructions to the subjects is the request to rate each item on a scale with anchor points labeled "pleasantness-unpleasantness". See Appendix A, Table A-1, Column 3.

(4) Frequency of Usage. Frequency has long been recognized as a potent variable in verbal learning experiments. It is usually obtained from word-counts based on large samples of printed matter, e.g. The Teacher's Word Book of 30,000 Words. (25). Such counts have many problems centering around the nature and datedness of the sample of material to be counted. Such counts are available for the words in the present sample. They will be compared with the rated frequency. The correlation between the two is expected to be high. This may demonstrate an easy and efficient manner of obtaining reliable frequency of usage information. See Appendix A, Table A-1, Column 4. The Thorndike-Lorge frequencies are also included in this table.

Association--Free and Controlled

The heirarchies of associative responses were tabulated from the results of eliciting such responses under four conditions:

(1) Free Association. This has come to be the "classical" and most widely-used method since the pioneering work of Kent and Rosanoff with schizophrenic patients. The instructions are completely open ended. The subject is instructed to record simply the first word that comes to mind as he reads the stimulus words. The responses given by a group of subjects are then displayed as a heirarchy with the most frequent response (and its associated frequency) listed at the top followed by a decreasing order down to those responses given by only one subject in the sample. The 240 heirarchies (each component word is presented as a single stimulus item), the specific instructions, and an account of the scoring procedures are found in Appendix C.

(2) Restricted Association--Nouns. In many respects free association is too "free". This makes it difficult to study the association process in a systematic way. Subjects are able to impose too many interpretations upon the instructions. This

leads to a great deal of variability in the results. Riegel (24) and others have argued the virtues of a controlled or restricted task. Subjects were asked to respond to the same set of words as in the free association situation except that the instructions stressed giving the first noun that came to mind. The response was to be of the same grammatical form class as the stimulus. The tabulation was handled in the same manner as the free responses. The results are shown in Appendix D.

(3) Restricted Association--Adjective. The procedure was exactly the same as (2) except that an adjective response was called for. Deese (6) has investigated the associative structure of nouns. He found that for most nouns the associations consist mostly of other nouns, so that the associative structure might best be studied by describing the way nouns cluster in groups. But an important second point is that nouns are also concept names, and that these concepts are characterized by descriptions in terms of adjectives. A given noun may select some adjectives and reject others. The grouping of nouns can be determined by the common set of adjective modifiers. The hypothesis to be examined here is that noun pairs which have a large number of adjectives in common in these restricted association heirarchies will be learned more easily as compared to pairs which have few such common elements. See Appendix E.

(4) Joint Meaningfulness. Subjects are asked in this task to give an association to the pair as the stimulus. This is a direct measure of the associative overlap between the two words. As a simple examination of the associative process the words found in this heirarchy can be compared to the overlap that is found in comparing the heirarchies of the stimulus and response words in the free association task above. Indices derived from these responses can also be related to performance in the verbal learning tasks. See Appendix H.

(5) Detection Value. Interest in what has been labelled detection value stems from previous research by one of the principal investigator's (JCN) students (8). The procedure consisted essentially of a "detection game" in which subjects are given one word as a clue and then were required to guess an associated word. In one study, clue words were taken from the response words given in a free association task. The words to be detected were the stimulus words corresponding to the response words. Before playing the detection game, subjects were told how association data are gathered and they were instructed regarding the properties of a typical response heirarchy. In a typical item the subject was given the response word "chair" and was asked which stimulus word elicited that association.

The results were somewhat surprising with respect to previous findings. Some response words that are not high frequency responses nor particularly high in terms of meaningfulness and related measures have a marked influence on detection scores. An outstanding example is the stimulus word "ocean". Far down in the heirarchy of response words to ocean is "Atlantic". However, the clue "Atlantic" leads to a correct detection of "ocean" for almost all subjects. Another interesting finding was that the detection curve is flatter than the association hierarchy curve. Words relatively far down in the association hierarchy have higher detection values than their associative frequencies would suggest. These and other results of the Flaugher research indicate that the detection game can provide a measure of word-relatedness that supplements information derived from the classical method of association. See Appendix G.

Some preliminary analyses were performed on the rating scales. Table 2 shows the intercorrelations between the scales based on the pairs. They are all seen to be a highly interrelated set of dimensions. Table 3 relates the same scales to several measures of overlap or commonality of response indices. They are derived scores and the method of calculation is described below.

TABLE 2

Intercorrelations Among the Four Rating Scales
Derived from the Pairs as Units

	(1) Similarity of Meaning	(2) Co-occurrence of Referent	(3) Syntactic Co-occurrence	(4) Ease of Learning
(1)	1.00*			
(2)	.69	1.00		
(3)	.25	.65	1.00	
(4)	.45	.55	.72	1.00

*All values in this table are significant at $p < .01$

TABLE 3

Intercorrelations Among the Rating Scales
Derived from Pairs and the Measures
of Associative Overlap

	Overlap		
	Free Association	Controlled-Noun	Controlled-Adj.
Similarity of Meaning	$.44^{**}$	$.40^{**}$	$.52^{**}$
Co-occurrence of Referent	$.24^{**}$	$.41^{**}$	$.29^{**}$
Syntactic Co-occurrence	.05	$.36^{**}$	.01
Ease of Learning	$.32^{**}$	$.62^{**}$	$.24^{**}$

$^{**}p < .01$

The Free Association overlap scores are taken from Appendix F, Common Responses to Pairs. Each response hierarchy in Appendix F is composed of responses which occurred in both the hierarchies for the two members of a word-pair in the Free Association norms. The frequency listed in the Common Response hierarchy is the sum of the two frequencies in the Free Association hierarchies. The Free Commonality score for a word-pair is the sum of the response frequencies in the Common Response hierarchy. For purposes of simplification only Common Response hierarchies for male subjects were used to derive Free Commonality scores.

The Noun Commonality scores are derived from common responses in Noun Association hierarchies. The score for a word-pair was derived in the same manner as the Free Commonality score except that the parent hierarchies were Noun Associations rather than Free Associations. Moreover, common responses were drawn only from the five most frequently occurring responses. If, however, a response in the five most frequently occurring responses in one hierarchy also occurred in the other hierarchy but not among the five top responses, it was nonetheless counted common. In addition, if one member of a word-pair elicited the other in its five top responses, that response was counted common even though the response word necessarily could not occur as a response in its own hierarchy. Common responses for the Noun Commonality measure were drawn only from Noun Association hierarchies for male subjects.

The Adjective Commonality scores were derived in the same manner as Noun Commonality scores, except that the parent hierarchies were Adjective Associations rather than Noun Associations.

Similarity of Meaning is correlated with all of the commonality measures (See Table 3). This is also true for Ease of Learning, with the highest correlation for the Noun variable. Two nouns which elicit a large number of common nouns under the controlled association instruction are also rated as easy to learn. The two non-significant correlations in the table are between Syntactic Co-occurrence with Free Association Commonality and with Adjective Commonality.

SECTION III

Paired-associates Learning

In the next phase of this research project, two major experiments were performed. The two experimental situations were paired-associates learning and verbal discrimination learning. The first was chosen because it is the traditionally and most completely standardized and analyzed of the rote verbal learning methods. This task will be the subject of this section. The second was used because it requires a different kind of process to reach criterion performance (See Section IV).

In evaluating the paired-associates experiment which follows, it is important to flag certain features which are different from the usual requirements. As mentioned above, the purpose of the experiment was to obtain stable performance estimates for each pair. To achieve this, large grooups of subjects participated in a group study-test procedure. The lists of pairs were longer than would usually be expected.

Method

The basic strategy was to present each pair to a number of subjects in a variety of list contexts, in several different random orders. The performance scores obtained for the pair under these varying conditions were examined for reliability, and then combined into a single index number. As a first step the 120 pairs were randomly divided into two lists of 60 pairs each. Each of these sets of items provided the stimulus material for one group of subjects (Groups I and II). Following the data collection for the lists the sets were recombined and randomly divided a second time (Two new lists of 60 items each presented to independent groups of subjects, III and IV). This process was repeated three more times. The complete experiment contained 10 groups of subjects, and each pair was presented in the context of five different lists.

The stimulus material was prepared on slides for presentation using a Carousel slide projector. One slide was made up showing both the stimulus and response word of the pair side by side (for use in the study trials). A second slide for use in the test trials contained the stimulus word only. Several copies of each slide were produced in order to facilitate the preparation of randomized lists.

The subjects for a given group were seated in alternate seats in a classroom and given a response booklet. The experiment was introduced as one of a series of studies in verbal behavior being conducted at Vanderbilt University. The general nature of the task was discussed. The subjects were told that they would see a long list of slides containing pairs of words. Their task would be to look at each slide as it appeared and to try to remember the pair of words. After the series of pairs was completed, a second set of slides would be projected containing only the left-hand or stimulus member and the task would be to remember the right-hand or response word. This response was to be written on the appropriate numbered blank on the response sheet. Questions were then answered by paraphrasing the appropriate sections of the instructions.

The set of 60 slides of word-pairs appropriate for Group I were then presented in random order at the rate of 1.2 sec. Immediately following the last slide, subjects were told to mark "Trial 1" at the top of the first page of the response booklet, a one sentence paraphrase of the instructions was repeated and the stimulus words alone (in a new randomization) were presented at a rate of 3 sec. Pilot work had indicated that this rate allowed ample time for the recall and recording of the response.

This process was repeated for two additional trials. A new randomization of the 60 pairs was used on each study trial. Likewise, each test trial used a new randomization of the stimulus words. At the end of the third test trial subjects signed their name on the back of the answer booklet and the session ended. The total time was approximately 40 minutes.

Groups II through X were run at varying times during the next 10 days. The groups ranged in size from 17 to 21. For purposes of analysis, subjects were randomly discarded so that the number of protocols to be scored in each group was 17.

Results

Each pair was tallied to determine the number of subjects who made a correct reponse on Trial 1, then on Trial 2, and finally on Trial 3. This procedure was completed for all of the groups.

A correlation analysis was used to assess the reliability of these scores. The scores were examined in several combinations: Trial 1, Trial 1 plus 2, and Trial 1 plus 2 plus 3. The intercorrelation matrices for the pairs in the five groups in which they appeared are shown in Tables 4, 5, and 6.

TABLE 4

Uncorrected Reliability Coefficients for the 120 Pairs in Five Groups: Trial 1, Paired-associates Learning

	G1	G2	G3	G4	G5
G1	1.00				
G2	.58	1.00			
G3	.62	.63	1.00		
G4	.57	.55	.60	1.00	
G5	.64	.56	.54	.56	1.00

TABLE 5

Uncorrected Reliability Coefficients for the 120 Pairs in Five Groups: Trial 1 plus 2, Paired-associates Learning

	G1	G2	G3	G4	G5
G1	1.00				
G2	.63	1.00			
G3	.66	.66	1.00		
G4	.67	.62	.70	1.00	
G5	.68	.62	.64	.64	1.00

An inspection of these tables indicates a satisfactorily high array of reliability indices. All of the individual entries are significant beyond the .001 level. On the basis of these results, great confidence can be placed in the stability of the score computed for each pair using the information in all five groups. Such scores were tabulated, and it is these scores that entered into all of the following analyses.

TABLE 6

Uncorrected Reliability Coefficients for the 120 Pairs in Five Groups: Trial 1 plus 2 plus 3, Paired-associates Learning

	G1	G2	G3	G4	G5
G1	1.00				
G2	.61	1.00			
G3	.68	.67	1.00		
G4	.66	.61	.69	1.00	
G5	.68	.63	.65	.69	1.00

Table 7 presents the correlations of the paired-associates performance scores with the measures of direct association. The entries are recorded for both Trial 1 and the sum over all three trials in the experiment. A comparison of these two columns indicates that most of the meaningful variance is contributed by the first trial and discussion will focus on this measure. The magnitude of the coefficients changes little as a result of including all trials. This observation was supported by a number of other comparisons not reported here, e.g. the trials considered separately, and Trial 1 plus Trial 2. Joint Meaningfulness and Detection Value-Forward produce significant correlations. Detection Value-Backward, with a value of .60, is more highly related then either of the other two. This is to be expected in view of the nature of the task. In Detection Value-Forward, the stimulus word of the pair was printed in the booklet, and the subject was asked to record the word. If the word was the "answer" in terms of the game, it would in general be highly available in the context of that stimulus item. And, it would then be highly available as a response when the pair was presented in the paired-associate learning task. This is, conversely, not true for the Detection Value-Backward format. Here the word that must be available in the learning task is already printed on the page.

The correlations with the various measures of overlap are significant. The most effective variable is Restricted Association-Noun. Noun pairs which have a large number of common associates under the restricted instructions are easy to learn. This supports Deese's assertion that the fundamental structure of noun associations involves other nouns.

TABLE 7

Correlation Coefficients Between Paired-associate Performance and Direct Measures of Association

	Trial 1	Trial 1+2+3
Joint Meaningfulness	.32*	.29
Detection Value-Forward	.24	.20
Detection Value-Backward	.60	.56
Associative Overlap		
Free Association	.25	.26
Restricted Association-Noun	.46	.44
Restricted Association-Adjective	.25	.24

*All entries in this table are significant at $p < .01$

As shown by the analysis in Section II, all of the rating scales based on the pairs are moderately inter-correlated. Table 8 shows the expected pattern of moderate, but statistically significant, relationships with the four scales. One exception, with a higher coefficient, is rated Ease of Learning. This is the rating scale which has the most obvious face validity. When asked to rate ease of learning, subjects have available all of the possible dimensions that are assessed as separate variables by the other scales. They are able to use this information to do quite well at rating expected paired-associates performance. Such results have been reported by other investigators.

The rating scale values obtained from the stimulus and words of the pairs considered as individual items were also correlated with the performance scores. These results are summarized in Table 9. Only the frequency of usage of the stimulus (either rated or estimated from the Thorndike-Lorge magazine count) is significantly correlated with paired-associates performance. This is typical on two counts. First, most studies show (12) that the factors of frequency, meaningfulness, and related variables have their most important effects on the response side of the pair; and second, this sign of the relationship is invariably positive. This completes a review of the major findings of the first experiment.

TABLE 8

Correlation Coefficients Between Paired-Associates Performance and Rating Scales Based on the Pairs

	Trial 1	Trial 1+2+3
Similarity of Meaning	.24**	.21*
Co-occurrence of the Referent	.25**	.21*
Ease of Learning	.55**	.51**
Syntactic Co-occurrence	.22*	.19*

$^{*}\ p \leq .05$
$^{**}\ p \leq .01$

TABLE 9

Correlation Coefficients Between Paired-associates Performance and Rating Scales Based on the Individual Items

		Trial 1	Trial 1+2+3
Rated Frequency of Usage	Stimulus	-.23*	-.21*
	Response	-.03	-.05
	S + R	-.15	-.15
Evaluation	Stimulus	-.16	-.11
	Response	-.16	-.16
	S + R	-.19*	-.17
Imagery	Stimulus	-.07	-.09
	Response	-.01	-.02
	S + R	-.05	-.06

TABLE 9--Continued

		Trial 1	Trial 1+2+3
Meaningfulness	Stimulus	-.10	-.09
	Response	.06	-.04
	S + R	-.03	-.03
Thorndike-Lorge Frequency (L-count)	Log Stimulus	$-.34^{**}$	$-.31^{**}$
	Log response	.00	-.02
	Log S + R	$-.20^{*}$	$-.21^{*}$

$^{*}p < .05$
$^{**}p < .01$

SECTION IV

Verbal Discrimination Learning

Verbal discrimination learning has been used in relatively few experiments. In contrast to paired-associates learning there has also been very little work at the theoretical level. Underwood (26) has pointed out that the task should have considerable value in sorting out the components of the stimulus function. The reason for this is that the subject does not have to learn the responses per se as is necessary in paired-associates learning. The subject's task is characterized as recognition rather than recall learning. Given Underwood's analysis and the fact that the primary interest in this project is in stimulus variables, a verbal discrimination study was the obvious choice to complement the previous experiment.

Method

The basic design was the same as used in the paired-associates experiment with the following exceptions:

(1) The slides used in the study trial contained both words. The word that had served as the response word in paired-associates learning was underlined and designated the "correct" word. The physical position (left or right hand side) was randomly varied on all study trials.

(2) The slides for the test trials contained both words without the underlining. As in the study trials, the left-right position was randomly varied from trial to trial.

(3) The instructions were changed appropriately. The subjects were asked to study each slide as it appeared and to try to remember which of the two words was underlined as the "correct" word. In the following test trial, subjects were instructed to look at each slide and to record in the test booklets the member of the pair that had been designated as the correct word.

Ten groups of subjects ranging in size from 20 to 23 were run during a period of two weeks. For purposes of analysis, subjects were randomly discarded so that the number of protocols to be scored in each group was 20.

Results

The scoring scheme followed the procedures of the paired-associates experiment. The results were first examined for reliability. The inter-correlation matrices for the pairs in the five groups in which they appeared are shown in Tables 10, 11, and 12.

TABLE 10

Uncorrected Reliability Coefficients for the 120 Pairs in Five Groups: Trial 1, Verbal Discrimination Learning

	G1	G2	G3	G4	G5
G1	1.00				
G2	.47	1.00			
G3	.38	.44	1.00		
G4	.53	.36	.33	1.00	
G5	.33	.56	.46	.22*	1.00

*$p < .05$, all others $p < .01$

TABLE 11

Uncorrected Reliability Coefficients for the 120 Pairs in Five Groups: Trial 1 Plus 2, Verbal Discrimination Learning

	G1	G2	G3	G4	G5
G1	1.00				
G2	.47	1.00			
G3	.42	.48	1.00		
G4	.54	.39	.38	1.00	
G5	.49	.59	.42	.32	1.00

The three tables convey essentially the same information. The coefficients are only slightly increased by the addition of the scores over all three trials. A significance level of .01 is reached for all of the entries except one: Group 4 and Group 5 on Trial 1. The magnitude of the correlations is sufficiently high for each group to insure a stable estimate for the pairs combined over all five groups. It is this combined score which is used in the following analyses. These tables of results parallel those constructed for the paired-associates experiment. The contents will be discussed at this point, and then both experiments will be compared in the next section.

TABLE 12

Uncorrected Reliability Coefficients for the 120 Pairs in Five Groups: Trial 1 Plus Trial 2 Plus Trial 3, Verbal Discrimination Learning

	G1	G2	G3	G4	G5
G1	1.00				
G2	.51	1.00			
G3	.42	.49	1.00		
G4	.53	.41	.46	1.00	
G5	.53	.55	.41	.34	1.00

First, Table 13 portrays the correlation with the direct measures of association. In this case, none of the entries reaches an acceptable significance level.

TABLE 13

Correlation Coefficients Between Verbal Discrimination Performance and Direct Measures of Association

	Trial 1	Trial 1+2+3
Joint Meaningfulness	.00	.05
Detection Value-Forward	-.02	.03
Detection Value-Backward	-.08	-.10
Associative Overlap		
Free Association	.18	.14
Restricted Association-Noun	.05	.05
Restricted Association-Adjective	.04	-.02

The rating scales based on the pairs correlate negatively with verbal discrimination performance (Table 14). Two of these, Similarity of Meaning and Ease of Learning, are not statistically significant. With Ease of Learning, the relationship is essentially zero. This follows since the original ratings were taken under conditions which described the paired-associates learning task. The two indices of co-occurrence produce significant negative correlations.

TABLE 14

Correlation Coefficients Between Verbal Discrimination Performance and Rating Scales Based on the Pairs

	Trial 1	Trial 1+2+3
Similarity of Meaning	-.16	-.16
Co-occurrence of the Referent	$-.27^{**}$	$-.30^{**}$
Ease of Learning	-.04	-.06
Syntactic Co-occurrence	$-.21^{*}$	$-.25^{**}$

$^{*}p < .05$
$^{**}p < .01$

The same pattern of negative coefficients is shown in the table of correlations with the rating scales based on the individual items (Table 15). The significant effects are found generally with the ratings of the response member of the pair. For example, it is the rated Frequency of Usage of the response word that has a significant negative relationship (-.36) with verbal discrimination performance, whereas in the case of the stimulus word the correlation is essentially zero. There is one marked exception to this trend and that is Meaningfulness. For this dimension, the response word rating correlates -.21 with performance while the stimulus word correlation is of the same magnitude, but opposite sign (.21). The Thorndike-Lorge Frequency reflects the pattern of the rated frequency scale.

TABLE 15

Correlation Coefficients Between Verbal Discrimination Performance and Rating Scales Based on the Individual Items

		Trial 1	Trial 1+2+3
Rated Frequency of Usage	Stimulus	-.03	.02
	Response	-.36**	-.38**
	S + R	-.23*	-.22*
Evaluation	Stimulus	.15	.20*
	Response	-.37**	-.34**
	S + R	-.13	-.08
Imagery	Stimulus	-.02	-.03
	Response	-.23*	-.24**
	S + R	-.17	-.19*
Meaningfulness	Stimulus	.21*	.21*
	Response	-.21*	-.21*
	S + R	-.01	-.01
Thorndike-Lorge Frequency (L-count)	Log Stimulus	-.08	.00
	Log Response	-.19*	-.24**
	Log S + R	-.15	-.11

*p $<$ .05
**p $<$ .01

SECTION V

A Comparison and Contrast of Paired-associates and Verbal Discrimination Learning

In the preceding sections the major task-situations studied in rote verbal learning have been introduced and analyzed separately. It is the purpose of this section to make several direct comparisons. One index of interest is the correlation between the two performance scores for each of the 120 pairs. This value was computed to be .27 ($p < .05$) for the means over three trials. Though this value is significant, indicating that the two tasks do share some common properties, the magnitude of the relationship shows that many of the pairs function quite differently in the two experiments.

In order to permit a visual comparison, Table 16 was compiled. The scores are recorded in terms of number of correct answers for the sums of Trials 1 + 2 + 3 for each pair, e.g., the values in the table can range from zero to three with the latter representing perfect performance. Overall, as expected, verbal discrimination learning (Mean = 2.60; SD = .16) was easier than paired-associates learning (Mean = 2.48; SD = .28). These differences are not large primarily because of a ceiling effect. Both tasks with stimulus materials of this type are very easy to "acquire" regardless of the particular experimental task. Looking at Table 16, the following four pairs show the greatest discrepancies in mean scores: BED-LAMP; FISH-TROUT; NEEDLE-RECORD; RAIN-BOW. In each of these cases, the stimulus words elicit one or two strong responses in free association: SLEEP; WATER, SEA; THREAD; WET, WATER, respectively. These high-strength associates would serve as interfering responses and would increase the difficulty of correct anticipation in a paired-associates test trial. Such responses would not play a role in verbal discrimination learning since it is, as pointed out earlier, a recognition task.

The remaining comparisons make use of the pairs of related tables in the two previous sections. First, with respect to the reliability coefficients, the values are uniformly higher for paired-associates learning. Because of the reduced difficulty of the verbal discrimination learning, there is a truncated range of possible scores which would reduce reliability. There is also a greater range of intergroup correlations for verbal discrimination learning indicating that the particular list context in which a pair appears produces a greater effect in this task.

TABLE 16

Mean Scores for 120 Word-Pairs for Paired-Associates Learning and Verbal Discrimination

Word-Pair	Paired-Associates Learning	Verbal Discrimination
Antlers - Deer	2.94	2.54
Ape - Monkey	2.78	2.65
Apple - Pear	2.40	2.81
Ash - Gin	2.40	2.77
Athlete - Invalid	2.70	2.83
Ax - Hatchet	2.78	2.65
Baby - Bottle	2.58	2.70
Ball - Golf	2.14	2.53
Bandit - Thief	2.68	2.64
Banker - Beggar	2.54	2.92
Bed - Lamp	1.71	2.42
Bee - Honey	2.82	2.51
Boat - Lake	2.06	2.36
Boy - Man	2.34	2.49
Brick - Clay	2.30	2.69
Bug - Insect	2.59	2.32
Bullet - Gun	2.57	2.38
Butter - Oil	2.29	2.76
Butterfly - Worm	2.50	2.86

TABLE 16--Continued

Word-Pair	Paired-Associates Learning	Verbal Discrimination
Button - Shirt	2.42	2.26
Car - Automobile	2.71	2.57
Carpet - Wool	2.30	2.61
Castle - Hut	2.51	2.80
Cheese - Mouse	2.58	2.47
Child - Kid	2.34	2.73
Citizen - Resident	2.22	2.46
City - Town	2.76	2.52
Claw - Lobster	2.46	2.40
Clock - Watch	2.52	2.57
Closet - Storehouse	1.94	2.30
Clothing - Store	2.27	2.30
Corn - Field	2.46	2.52
Court - Tennis	2.02	2.68
Crocodile - Alligator	2.93	2.86
Crowd - Mob	2.60	2.71
Currency - Money	2.90	2.66
Dagger - Knife	2.74	2.56
Diamond - Jewel	2.33	2.65
Doctor - Physician	2.64	2.76

TABLE 16--Continued

Word-Pair	Paired-Associates Learning	Verbal Discrimination
Dog - Cat	2.81	2.71
Dream - Night	2.37	2.40
Dust - Bowl	2.42	2.34
Eagle - Bird	2.61	2.60
Emblem - Label	2.14	2.55
Engine - Steam	2.52	2.63
Farm - Barn	2.58	2.66
Fig - Leaf	2.75	2.42
Fish - Trout	1.99	2.57
Foot - Shoe	2.27	2.29
Friend - Enemy	2.75	2.67
Garbage - Can	2.87	2.71
Genius - Moron	2.39	2.81
Germ - Microbe	2.65	2.68
Giant - Midget	2.80	2.80
Girl - Scout	2.51	2.73
Glove - People	2.04	2.38
God - Devil	2.70	2.90
Goose - Duck	2.45	2.65
Grape - Vine	2.73	2.68
Gun - Trigger	1.88	2.41

TABLE 16--Continued

Word-Pair	Paired-Associates Learning	Verbal Discrimination
Hammer - Saw	2.08	2.61
Hand - Finger	2.36	2.70
Harbor - Ship	2.29	2.58
Hat - Coat	2.31	2.11
Head - Organ	2.21	2.53
Hour - Minute	2.70	2.67
Jail - Prison	2.62	2.59
Justice - Peace	2.75	2.53
King - Governor	2.41	2.81
Lettuce - Tomato	2.60	2.76
Library - Book	2.84	2.56
Lion - Tiger	2.73	2.65
Lip - Bacon	2.10	2.63
Lizard - Reptile	2.65	2.52
Lunatic - Fool	2.34	2.75
Milk - Maid	2.41	2.71
Minnow - Whale	2.76	2.69
Moon - Stars	2.54	2.71
Morning - Dawn	2.30	2.65
Mother - Sister	2.48	2.73
Mountain - Hill	2.71	2.77

TABLE 16--Continued

Word-Pair	Paired-Associates Learning	Verbal Discrimination
Needle - Record	1.56	2.27
Ocean - Sea	2.84	2.64
Orange - Fruit	2.41	2.71
Oyster - Shell	2.61	2.71
Paint - Brush	2.77	2.43
Paper - Pencil	2.44	2.65
Pearl - Necklace	2.72	2.28
Pen - Ink	2.66	2.58
Pot - Pan	2.77	2.58
Priest - Minister	2.70	2.67
Radio - Television	2.75	2.71
Rain - Bow	1.81	2.64
River - Bridge	1.95	2.72
Room - Ceiling	2.27	2.70
Rose - Thorn	2.67	2.67
Saint - Sinner	2.81	2.85
Salt - Pepper	2.82	2.66
Sheep - Meadow	2.15	2.37
Sink - Kitchen	2.52	2.34
Snake - Pit	2.37	2.74
Soap - Water	2.49	2.43

TABLE 16--Continued

Word-Pair	Paired-Associates Learning	Verbal Discrimination
Soldier - Rifle	2.21	2.60
Spider - Widow	2.50	2.67
Stamp - Envelope	2.34	2.41
Step - Brother	2.34	2.58
Stove - Coffee	2.05	2.52
Street - Road	2.55	2.50
Summer - Church	2.20	2.67
Thunder - Storm	2.65	2.48
Tobacco - Smoke	2.73	2.50
Turtle - Rabbit	2.33	2.53
Typewriter - Ribbon	2.81	2.71
Waffle - Syrup	2.57	2.77
Wedding - Ring	2.86	2.74
Whiskey - Party	2.94	2.63
Window - Frost	2.00	2.70
Woman - Skirt	2.18	2.79
Worker - Loafer	2.43	2.79
Yolk - Egg	2.96	2.49

Paired-associates performance correlates substantially with all of the direct measures of association while verbal discrimination performance correlates near zero with all such measures. This can be interpreted to mean such variables as the number of associations the pair elicits and the overlap between the free association hierarchies play no role in a task where there is no response learning or recall required. Factors based on "associative arousal" or the structure of associative relationships are not relevant to verbal discrimination learning.

Rating scales such as Similarity of Meaning and the various Co-occurrence measures show opposite effects in the two tasks (positive in paired-associates learning and negative in verbal discrimination learning, with greater magnitude in the former case). Words which are similar in meaning, occur in the same syntactic structures, and which have referents that occur together will also elicit each other in free association--and the words will be available to recall in the anticipation procedure of paired-associates learning. All of these could be expected to hinder verbal discrimination performance since they could lead to confusion of the two members of the pair; and thus appear as negatively correlated variables. However, this is true only for the two co-occurrence indices (Referent and Syntactic).

A comparison of the ratings of the individual items provides some consistent, though puzzling, results. The signs of the correlations are uniformly negative for both tasks, but the location of the significant values is almost split evenly between the two tables (stimulus word for paired-associates learning, and response word for the verbal discrimination task). The two frequency dimensions are good examples. There is no apparent explanation for these effects. In paired-associates learning the major frequency effect is routinely found on the response side, and is always positive. Perhaps, using highly frequent nouns and the study-test group procedure there are complex interference effects on the stimulus side. But the frequency results are even more puzzling in verbal discrimination learning since all of the words (stimulus and response) are always present when the choice is to be made. "Availability" should play no role in this choice, especially with this type of stimulus material. Only systematic experimental manipulation of these variables could provide a satisfactory explanation.

SECTION VI

Related Experiments

The major effort in this program of research has been absorbed in experiments which employed a correlational analysis. Three experiments are reported in this chapter in order to illustrate the potential usefulness of the normative material in selecting stimulus words. The rating scale information and the association heirarchies permit a controlled selection of items varying in one dimension. The two experiments investigated the semantic generalization and free recall of word-pairs which are similar or opposite in semantic relationship.

Semantic generalization is typically explained by references to an implicit mediating response. The probability of this implicit response is independently determined from word association norms (17). Association strength assessed in this way, however, may not be the only basis for the observed generalization. Karwoski and Schachter (15), for example, have introduced a classification scheme for associates which uses essentially two categories: "similars" and "opposites". Building on this scheme, Olson (19) hypothesized an "implicit meaning response" joining similars but not opposites and operating independently of association strength. To demonstrate its effect, he studied similar and opposite word-pairs matched for association strength in a semantic generalization task. He predicted greater generalization to similar words than to opposites, but this hypothesis was not supported. Similars and opposites were not significantly different, although both showed significant generalization when compared to control words.

The choice of materials in the Olson experiment may have contributed to the failure to confirm the hypothesis. Similar and opposite pairs were matched for association strength and this strength was high. In fact, the response word in every case was the primary response to the stimulus word. The operation of an independent meaning response might be very difficult to detect in a situation in which the associative relationship is so powerful.

In the following studies Olson's list of high association (HA) pairs was augmented by a list of low association (LA) pairs. This combined list of stimulus materials was used in two experiments to examine the relative contribution of association strength and semantic relationship to performance in two different tasks. Exp. I used a task and procedure similar to those in the Olson study, with the expectation that the effects of semantic relationship would be more likely to appear among the LA pairs. Duration of presentation of the items during the test phase was also varied in this experiment. Pilot work in another context had produced a trend toward higher indices of generalization for longer exposure durations. The results showed that opposite pairs at both levels of association strength produced significant generalization while similar pairs did not differ from controls. Exp. II utilized the same pairs in a free recall task, using an index of clustering to measure the effect of the two variables. A significant interaction resulted. Similar pairs produced clustering scores at an intermediate level which did not differ as a function of association strength. HA opposite pairs produced the largest clustering score in the four categories and LA opposite pairs the lowest score. The utility of the implicit meaning response is discussed in terms of the results of these two experiments.

Experiment 1

Sixty subjects were recruited from introductory psychology classes at Vanderbilt University and were randomly assigned to the four treatment groups. Participation in experiments was a course requirement.

The stimulus material presented to Group HA was the same as that used by Olson (19, p. 329, Table 1) with one exception. In order to permit effective matching with pairs for Group LA, one pair each of opposites and of similars was deleted (BEAUTIFUL-UGLY; COMMAND-ORDER) leaving a total of six in each category. Wore-pairs for Group LA (see Table 17) were drawn from unpublished similarity of meaning ratings gathered at Vanderbilt University on 120 noun-pairs (N = 64). The 7-category rating scale used anchors labelled "very similar in meaning" and "very dissimilar in meaning". Two illustrations were used in the instructions to further specify the dimension: BEGGAR-MILLIONAIRE (Scale value = 1) and CHILD-YOUNGSTER (Scale value = 7).

As shown in the last column of Table 1, items were picked from the extremes of the scale. The pairs were also selected to have forward and reverse association strengths as near zero as possible (Columns 3 and 4 of Table 17). This information was drawn from unpublished word association norms (N = 350) collected at Vanderbilt University. Furthermore, inter-item association strength was kept near zero (maximum value = 1% of the total), and the categories were closely matched on frequency of cultural usage as assessed by the Thorndike-Lorge word count (25). Seventeen neutral words were chosen which had no associative overlap greater than 1% with the words shown on Table 17 and with the words retained from Olson (19).

TABLE 17

Percentage of Association and Similarity Rating Scale Values for the Low Association Strength Pairs

Stimulus Word	Response Word	Percentage Forward Association	Percentage Reverse Association	Similarity Scale Value
Similar:				
LUNATIC	FOOL	0.29	0.00	5.21
PRIEST	MINISTER	7.14	4.57	6.24
GERM	MICROBE	0.29	16.30	5.54
EMBLEM	LABEL	0.00	0.29	5.12
CITIZEN	RESIDENT	0.86	0.29	5.63
CLOSET	STOREHOUSE	0.00	0.29	4.45
	MEAN	1.43	3.62	5.37
	MEDIAN	0.29	0.29	5.37
Opposite:				
WORKER	LOAFER	0.57	1.14	1.21
BANKER	BEGGAR	0.00	0.00	1.42
TURTLE	RABBIT	0.86	0.00	2.00
ATHLETE	INVALID	0.00	0.57	1.12
CASTLE	HUT	0.00	0.00	1.67
MINNOW	WHALE	0.29	0.00	1.85
	MEAN	0.29	0.29	1.55
	MEDIAN	0.29	0.00	1.54

Each learning list contained the 12 stimulus words of the appropriate pairs plus six dummy words. Three dummy words appeared at the beginning and end of the list while the 12 words were arranged in between so that opposite and similar members were alternated in the series. The 28 word test list consisted of the 12 response words, 5 of the dummy words, and 11 neutral words. Six randomizations of this list were prepared with the restriction that no more than two words from a single classification could appear in succession in any randomization.

The word lists, typed in capital letters on white paper tape, were presented to the subjects on a Lafayette memory drum. A small box with a single button in the center was placed at the subjects right hand. The response was a press of the button with the right index finger. Subject was told that this was an experiment studying speed of recognition and that the button was to be pressed for each word that appeared in the window. Two presentations of the learning list followed. Each word was exposed for 1.0 sec. with a 1.0 sec. inter-item interval. After a 2 min. break, subject was told that a second, longer list would be exposed, and that he was to press the button to words that had appeared in the original list. The instructions stressed a "weak" criterion of recognition. Exposure for test list words was at either a 1 sec. or 2 sec. rate depending upon the treatment group. The inter-item interval corresponded to the exposure time. The 6 randomizations were presented without interruption.

The mean number of responses per subject per word was computed for each semantic category, for dummy words repeated from the learning list, and for neutral words. The group means are shown in Table 18. An analysis of variance was performed on these scores with association strength (high vs. low) and time (1 sec. vs. 2 sec.) as between-subject variables and test list category (similar, opposite, dummy, neutral) as a within-subject variable. Two sources of variation were significant: association strength with $\underline{F}$ (1,56) = 5.76, ($\underline{p} < .02$) and test list category with $\underline{F}$ (3, 168) = 464.62, ($\underline{p} < .001$). The time main effect had an $\underline{F} < 1$, and no interactions were significant. The neutral category mean provided a base-line control for evaluating test list categories in a Newman-Keuls mutiple comparisons test (30, p. 309). Dummy words were significantly different from the control category ($\underline{p} < .001$). Opposites were significantly different from controls ($\underline{p} < .05$). The mean of the similar category did not reach a satisfactory significance level.

TABLE 18

Mean Number of Responses per Subject per Word in Each Test List Category Summed Across Six Randomizations

		Similar	Opposite	Dummy	Neutral
High Association	1 sec.	1.20	1.41	5.08	1.02
	2 sec.	0.91	1.14	5.33	0.78
Low Association	1 sec.	0.40	0.74	5.41	0.39
	2 sec.	0.66	0.71	5.04	0.52
Grand Mean		0.79	1.00	5.23	0.68

Experiment II

Jenkins (13) has suggested that tasks used in verbal behavior experiments vary on a dimension of associative arousal. A task such as the motor-response generalization test list used above is relatively low on this dimension. On the other hand, a task such as free recall (FR) is rated the highest entry on this hypothetical scale. In FR, subject is instructed to use all the available information to remember as many words as possible. In this context, implicit responses based upon associative relationships or semantic category membership should play a greater role. Also, any differential contribution should be easier to detect. The purpose of Exp. II was to present the same stimulus materials used in Exp. I in a FR task in order to take advantage of the anticipated increase in associative arousal. Differences that were marginal in Exp. I were expected to be larger in this situation.

Eighty subjects were recruited under the conditions described above. All stimulus materials were selected from those used in Exp. I. A randomized list of the 24 words that make up the HA pairs (plus 4 neutral words inserted at each end) was presented to groups of subjects using a slide projector. The duration of exposure of each slide was 1 1/4 sec. The subjects were instructed to look at the list of words and try to remember as many as possible in any order. A 4 min. recall period followed this presentation. A total of 5 recall trials was given using a different randomization of the stimulus materials in each case. Forty subjects (20 male, 20 female) participated in this manner in three separate groups.

This procedure was repeated using the LA pairs. The order of running the HA and LA groups was randomly determined.

A forward clustering score for similar and opposite pairs was computed for each trial for each subject. A forward cluster was tallied if the stimulus word in the pair was immediately followed by the response word. In order to adjust for differences in the absolute number of words recalled a derived score was calculated which was expressed as a ratio of number of clusters to the number of opportunities to cluster. An opportunity was defined as the appearance of the stimulus member of a pair. The value of such a score could range from zero to one. The group means for forward clustering are shown in Table 19. A backward clustering score was also computed from response words immediately followed by the appropriate stimulus word.

TABLE 19

Mean Derived Clustering Scores in Each Recall Trial

		Trial				
		1	2	3	4	5
High Association	Similar	0.35	0.54	0.75	0.82	0.84
	Opposite	0.51	0.78	0.82	0.84	0.91
Low Association	Similar	0.39	0.47	0.64	0.66	0.69
	Opposite	0.07	0.20	0.32	0.40	0.33

Preliminary analysis showed that the three groups within each level of association strength produced similar results. These groups were combined and an analysis of variance was performed on the forward clustering scores with association strength and sex as between-subject variables and semantic category and trials as within-subject variables. The source of variation of primary interest is the association strength by semantic category interaction with $\underline{F}$ (1, 76) = 57.92, ($\underline{p} < .001$). It is clear from an inspection of Table 19 that this interaction is due to the reversal of the similar and opposite recall indices at the two levels of association strength. For the HA group, opposite pairs produced consistently higher derived clustering scores than similar pairs, while for the LA group the reverse is true. Except for the inversion of two points on Trial 1, this pattern is uniform across all five trials. Other significant sources of variance were the main effects for association strength with F (1, 76) = 61.93, ($p < .011$). for trials with F (4,304) = 44.00, ($p < .001$), and for semantic category with F (1, 76) = 12.55, ($p < .001$). The main effect of sex was not significant and it did not contribute to any significant interaction. Earlier studies of free recall using subjects from the Vanderbilt population had produced a sex difference, but there was no indication of one in this experiment. An analysis of the backward clustering scores produced essentially the same pattern of results. The only difference was that the semantic category main effect was not significant. Since the results were so similar, no further detail is reported.

The groups in Exp. I which replicated the major features of the Olson (19) study only partially supported his findings. Opposite words showed significant generalization when compared to neutral words. However, similar words did not. This same pattern was found for the low association pairs selected for Exp. I. Also, a variation of the exposure interval in the test list did not modify these results. In each case the order of the three categories from highest to lowest was the same: opposite, similar, neutral.

Part of the reason that differences were more difficult to detect in this experiment might be due to a "floor effect". Direct comparison between the two experiments is not possible because of a change in list length. However, on a per-word basis the subjects in this experiment were responding at a reduced rate: 0.68 for neutral words as compared to 1.07 for Olson and 1.02 versus 2.04 for opposites. On the other hand, subjects in this case performed at a higher rate with respect to the dummy words: 5.23 versus 4.25. These subjects were more efficient at categorizing the test list into old and new items. The proportion of "false alarms" on the whole was very small. This may account for the lack of significant differences between neutral and similar categories. It does not, of course, account for the consistent effects with opposite words. This finding does support the suggestion made by Deese (5) that the strong relationship of opposites such as HOT and COLD arises because they are descriptive of a common conceptual dimension. Similars do not share such a common dimension.

Examination of Exp. II in which associative arousal was expected to play a larger role, shows that the HA words support the outcome of Exp. I. Opposites show more clustering than similars across all of the five trials. The LA similar words (with the exception of Trial 1 noted above) rank third in degree of clustering. The LA opposite words are the unusually deviant group. They show sharply reduced clustering indices when compared to the other three categories of words. The opposite relationship, unsupported by association strength, proved a weak source of clustering in recall. There is no ready explanation for the performance for this category in this experimental situation as compared to Exp. I. There are obvious differences between the tasks, of course, but there is no apparent reason for the peculiarly different influence of these task variations on LA opposite words. There is evidence that semantic relationships do play a role in verbal learning tasks and that the contribution of such relationships is not a simple one. The effect is unstable within the same task and shows wide variation between tasks. One firm conclusion that can be drawn from studies of this type was suggested by Olson (19). Words from the natural language are related in many different ways. Degree of similarity of meaning and association strength are only two dimensions of relatedness. The generalization and clustering effects in the experiments above may have also been enhanced or inhibited by a variety of other dimensions.

Experiment III

In addition to the two experiments reported above, a third experiment was completed. The question to be examined derived from the results of Experiment I. In that experiment the lists of stimulus material were constructed so that each subject was exposed in the generalization task to a list containing both similar and opposite pairs. That is, semantic category was a within-subject variable while each subject was exposed to only one level of association strength (a between-variable in the experiment). Recent findings have focused attention on the nature of the lists ("mixed" versus "unmixed") in verbal learning studies (4, 23). Results suggest that lists of unmixed materials allow more opportunity for the variables to operate in an unconfounded fashion. Underwood (27) has made the statement that only when a comparison of two conditions with unmixed materials is available is it possible to ascertain whether or not the mixed list condition produces extraneous effects.

The following study provided such a comparison. The stimulus material from Experiment I was realigned into a list of similar pairs and an independent list of opposite pairs. An additional variation was introduced by varying the exposure time in the learning stage (as opposed to the test stage) at two levels (one second and two second). Thus, the experiment employed a 2 x 2 x 2 design, i.e. three factors at two levels each.

Sixty subjects were recruited from introductory psychology courses at Vanderbilt University. Participation in these experiments was, as usual, a course requirement. The sample of students was randomly assigned to one of four experimental groups: Group I - Similars, 1 sec.; Group II - Opposites, 1 sec.; Group III - Similars, 2 sec.; Group IV - Opposites, 2 sec.

The procedure and apparatus were the same as Experiment I in all essential features. One learning list consisted of the 12 stimulus words of the similar pairs with three neutral words (designated as "dummy" words) at each end of the list. The high association and low association words were alternated in the list. The other learning list was identical except that the 12 stimulus words of the opposite pairs were used.

Each test list consisted of the 12 appropriate response words for the stimulus words, 5 of the dummy words, and 11 neutral words. The words were distributed randomly in the list with the restriction that no more than two words of either association strength could appear in succession.

As a first step in analyzing the results, the mean number of button-pressing responses per subject per word in each test-list category was computed as the performance measure, with six being the maximum score in each category. Table 20 summarizes the group means.

TABLE 20

Mean Number of Responses per Subject per Word in Each Test-List Category: Experiment III

Time	Semantic Category	High A	Low A	Repeated	Neutral
1 sec.	Similar	1.26	0.66	4.99	0.29
	Opposite	0.80	0.26	5.33	0.67
2 sec.	Similar	0.31	0.22	5.25	0.23
	Opposite	0.50	0.40	5.47	0.38

Semantic category and learning list exposure were between-subject variables while level of association strength was a within-subject variable. A 2 x 2 x 4 repeated measures analysis of variance performed on the data yielded the results shown in Table 21.

The analysis revealed no significant difference between number of responses to similar words and to opposite words; nor was there a significant main effect for the time variable. However the within-subject variable of test-list category consisting of high association strength words, low association strength words, repeated words, and neutral words was significant ($p < 0.001$). There was also a significant interaction (see Fig. 1) between exposure time and the within-subject variable ($p < 0.01$). It is worthwhile to note that the omega-squared value is 0.003 indicating essentially zero degree of predictive relationship between the interacting variables.

When Newman-Keuls multiple comparisons were made among the four separate category means of the within-subject variable, the results were as follows: at Time I (1 second) high association strength words were significantly greater than neutral words and than low association strength words, and repeated words reached significance over neutral words, low association strength words, and high association strength words; at Time II (2 seconds) only the repeated words differed significantly from the other three categories. Table 22 summarizes the results of these individual comparisons with the alpha level at 0.01.

The finding of no significant difference in amounts of generalization to similar words and to opposite words supports the conclusion of the Olson (19) study and contradicts the contention of Karwoski and Schacter (15) that association by similarity is stronger than association by contrast. In the Experiment I opposites showed more generalization than similars in lists of mixed semantic category.

It appears that there may be a stronger tendency to respond to opposites when both are present in the same list or that similars are more easily recognized as such in a mixed list and are thus less vulnerable to "false alarms". When lists of unmixed semantic category are used, there is only one set for responding available to the subject depending on the list given to him, and he adapts to it quicker in the task. Therefore the confusion in sets to respond or in types of relationship inherent in the mixed list design may be a confounding variable.

TABLE 21

Summary Table for Analysis of Variance of
Test-List Responses: Experiment III

Source	df	Sum of Squares	Mean Square	F-Ratio	Probability	Omega Squared
Between Subjects						
Time (A)	1	2.042	2.042	2.470	0.121	0.001
Semantic Category (B)	1	0.339	0.339			
A x B	1	0.702	0.702			
Ss / AB	56	46.300	0.827			
Within Subjects						
Test-List Category (C)	3	1024.917	341.639	922.749	<0.001	0.893
A x C	3	5.112	1.704	4.602	0.004	0.003
B x C	3	2.334	0.778	2.101	0.102	0.001
A x B x C	3	2.368	0.789	2.132	0.098	0.001
C x *Ss* / AB	168	62.200	0.370			
Total	239	1146.315	4.796			

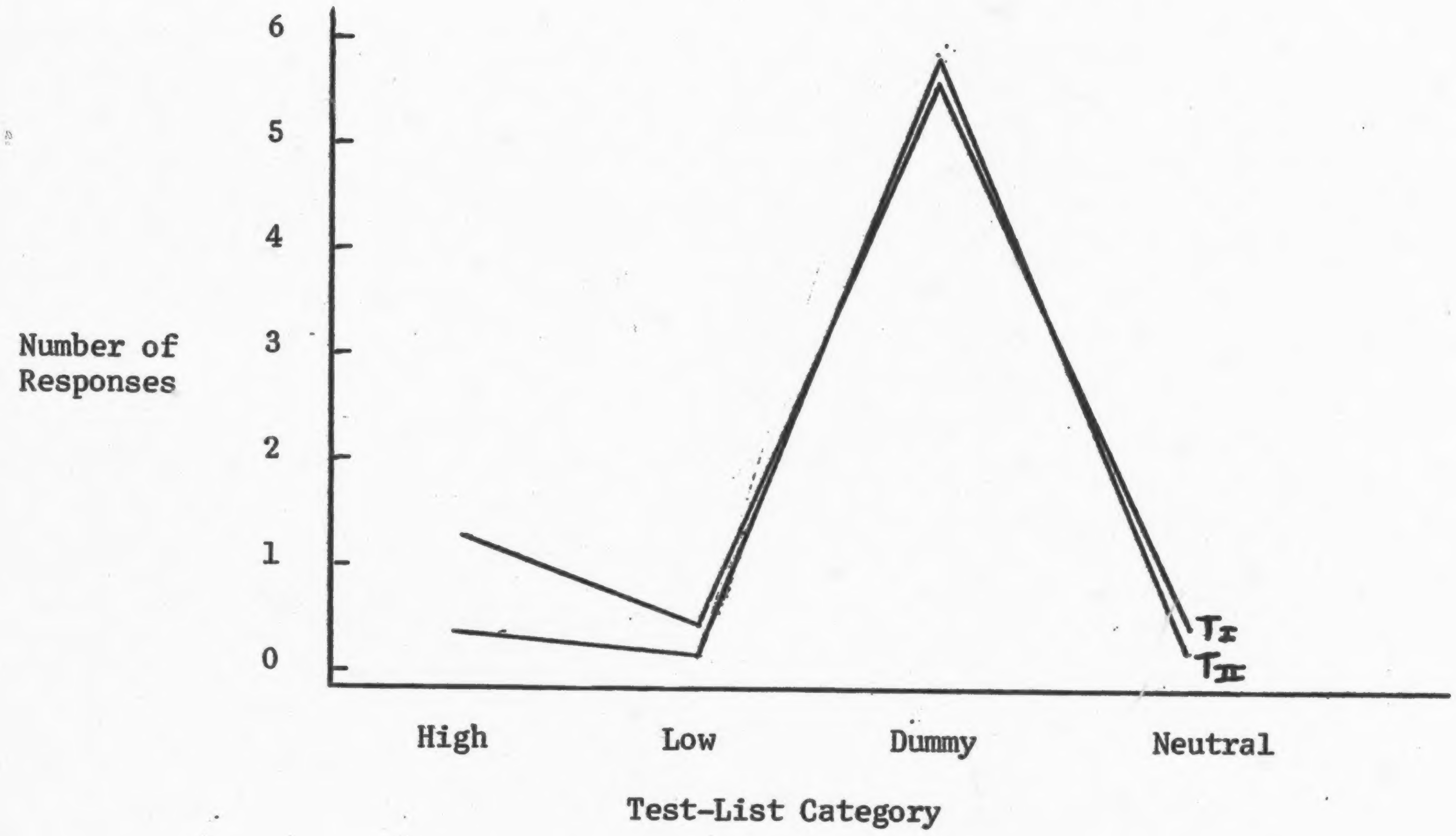

Figure 1. Graph of Interaction Between Time and Test-List Category: Experiment III

TABLE 22

Summary Tables for Individual Comparisons
Among Test-List Categories

	Time I					Time II			
	LA	N	HA	R		N	LA	HA	R
LA			*	*	N				*
N			*	*	LA				*
HA				*	HA				*

Like Experiment I, the present experiment showed no significant main effect for the variation of exposure time. However, there was a trend in both studies for more generalization to occur when both learning list exposure time and test list exposure time were one second than when either was lengthened to two seconds. This trend seems to indicate the possibility of a "confusion hypothesis" of semantic generalization. When the subject has less time to learn or to respond, he becomes confused and is more prone to make "false alarms". If given two seconds in either the learning or test stage, the subject virtually learns the list perfectly; or he rejects the implicit mediation which occurs initially. It might also be that the internal response occurs in a relatively short time, i.e. in less than one second, or that mediation is an all or none phenomenon which an increase in exposure time does not facilitate.

The explanations cited for the time manipulation gain further support from the significant interaction between time and the within-subject variable. At the one-second exposure time generalization is significantly higher to high association strength words than to low association strength words, but at the two-second level there is significant generalization to neither high association strength words nor low association strength words. Apparently the degree of learning is so high for the two-second exposure time that the usually powerful variable of association strength has no opportunity to operate. In the two-second condition there are fewer errors (responses to high association, low association or neutral words) and more correct responses (to repeated words).

A comparison of the Olson (19) study, Experiment I, and the present study seems to indicate that the task employed to assess mediated generalization is highly unstable under even optimum conditions. The results point toward the conclusion reached by Deese (5) and others who suggest that opposition and similarity are equally integral dimensions of the associative linkage and that the relationship involves a much more complex structure which is not open to analysis with the present S-R techniques.

In a recently published paper, "The organization of linguistic performance", Wales and Marshall (29) sharply question the crude means which have been used to investigate semantic relationship. They challenge the efficacy of studying human conceptual organization by such measures as salivary responses, GSRs, and blood vessel dilation. The authors cite evidence which implies that cognitive theories are necessary to explain the conditioned responses such as salivation assessed by these S-R methods. Thus it appears more sensible "to dispense with rolls of cotton wool in the mouth and to study cognition more directly". Perhaps the peripheral button-pressing task should likewise be replaced by a more direct probe of the cognitive semantic and associative relationships.

SECTION VII

Conclusions and Implications

The basic research program to study a variety of word-relatedness patterns has led to a number of conclusions which can best be presented as a series of numbered statements:

(1) In studying the associative process by the technique of word association tests, the classic free association format is useful. In addition, important information can be gained from controlled or restricted tasks. For example, the number of overlapping nouns that the stimulus and response share (in a Controlled Association, Noun task) is an effective predictor in learning experiments.

(2) A number of rating scales have been developed based on both items of the pair and on the individual words. These scales appear to tap overlapping, but partially independent, sources of variation in performance scores on the learning tasks.

(3) Two new indices of word-relatedness have been developed and examined, Joint Meaningfulness and Detection-Value. Both proved to be useful predictors of performance in paired-associates learning, but unrelated to verbal discrimination learning. This difference was discussed in terms of the requirements of the two tasks.

(4) The efficiency of the group study-test procedure and the "by-pair" analysis has been demonstrated for rote verbal learning studies. This is particularly effective when the properties of the stimulus material form the focus of the investigation.

(5) Paired-associates learning and verbal discrimunation learning show a markedly different pattern of correlations with dimensions of the stimulus material. Measures which tap "associative arousal" are effective predictors of paired-associates performance, but unrelated to verbal discrimination learning.

(6) In addition to the correlation analyses, several studies of traditional design were conducted to examine the nature of the Similar-Opposite relation. Some theoretical accounts have predicted that similarity would be the more potent aspect of the two in such tasks as mediated generalization of a motor response. The experiments reported above do not support that prediction. Moreover, the magnitude and direction of the differences is very much a function of the specific experimental design and procedures employed in a given study.

The implications for rote verbal learning are reasonably clear. The range of available techniques should be expanded to include "by-pair" correlational analyses based on group study-test procedures. Reliable results can be obtained with reduced effort and expense. Generalizations of results should not be made directly from paired-associates learning to verbal discrimination learning. The two tasks are sensitive to different aspects of the stimulus pairs. Finally, the methodological caution expressed by Underwood (27) has been supported. The results of experiments may depend upon the type of stimulus lists used--whether mixed or unmixed with respect to the levels of the variable under investigation.

In a broader context, recent developments in psycholinguistics have called into question the relevance of research with natural language materials in the simple kinds of laboratory tasks where only word-word relationships are studied. The thrust of the argument comes from the logical analysis of language provided by the linguistically trained members of the psycholinguistic group. They assert, essentially, that the portrayal of language as a highly structured, and hierarchically organized, system makes it difficult to specify which properties of this system are "captured" by the traditional rote verbal learning tasks.

It was not the purpose of this project to incorporate the psycholinguistic literature, but future work of this type must be evaluated in the context of these arguments. The general tone can be conveyed by quotations from two recent publications by established investigators in this field. First, Professor James Deese (in press) speaking at a conference at the University of Kentucky in the spring of 1966. In evaluating the empirical findings from the study of verbal associative processes he said, "We have discovered remarkably little that is stable or of general significance, given a century of investigation and thousands upon thousands of experiments. The comparison with the remarkable progress in the past few years that has been made in linguistic theory--in part concerned with much the same subject matter--is especially revealing. Linguistic theory, as we now know, has gone into a revolutionary phase in which many of the assumptions standing behind earlier investigations have been abandoned in favor of far richer assumptions leading to broader investigations that much more reasonably permit the characterization of the phenomena under study. The assumptions that are being abandoned in linguistic theory, by the way, bear a suspiciously familial resemblance to the notions of classical associationism".

The second remark is from J. J. Jenkins (1965) speaking at a conference, "If one gives credence to these arguments, it must be apparent that grammatical behavior itself is to be a battleground on which traditional associational psychology will be slain. If this important behavior cannot be dealt with, the associationist may well be written off as far as human behavior is concerned, for it is likely that the explanation of all higher mental processes will be beyond this reach. I believe the psychologist must rise to the challenge or prepare to retire to the dim corners of his laboratory where he deals only with narrow segments of behavior which happen to fit his theoretical formulations".

Given the success of the studies of this project within the domain for which it was designed, there remains definite power in the suggestions that the results may not be relevant for much beyond the specific laboratory task-situations.

SECTION VIII

Summary

The purpose of the project was to examine the effects of several measures of word-relatedness on several verbal learning tasks--primarily paired-associates learning and verbal discrimination learning, with incidental attention given to free recall and semantic generalization. The strategy was to select a sample of word pairs (in this case, 240 common nouns arranged into 120 pairs to represent a variety of judged relationships) and then to study these pairs extensively in a variety of experimental task situations.

Normative data was collected for all of the pairs using standard rating scale techniques (Similarity of Meaning, Co-occurrence of the Referent, Rated Ease of Learning, and Syntactic Co-occurrence) plus association tasks. The two association tasks were developed as part of this project: Joint Meaningfulness which was based on a direct instruction to give associations to the pair as a stimulus, and Detection Value which requires the subject to guess the word that might have been the stimulus word for the item in the booklet described as the response given in the usual free association test.

In addition to the material compiled for the pairs, several indices were assessed for each individual item. Some of these were rating scales (Evaluation, Imagery, Meaningfulness, and Rated Frequency of Usage), while the remainder were associative tasks (Free Association, Controlled Association-Noun, Controlled Association-Adjective). Each of these measures was obtained from a large independent sample of college students at Vanderbilt University. This first phase of the work was completed with an evaluation of the reliability of the indices (satisfactorily high in all cases) and the calculation of the various intercorrelation matrices (in the main, many of the variables tap overlapping and independent sources of variance). The nouns are attached as appendices to this report.

Paired-associates learning and verbal discrimination learning scores were determined in two experiments. The interest was in achieving a stable score for each pair in contrast to the usual attack of scoring by-subject. To do this a group study-test procedure was developed and used with appropriate minor changes in both experiments. Each pair appeared in five different 60-item lists. Each list was presented to an independent group of subjects for three trials (one study exposure of the pairs, one test exposure of the stimulus word alone per trial). Different randomizations were used for each study and test presentation. The reliability of the scores for each pair was examined by calculating the 5 x 5 intercorrelation matrix for the groups using the scores for the 120 pairs tallied in each group. In both experiments the reliability was satisfactorily high (though relatively higher for the paired-associates task) and a combined score was obtained for each pair across groups. This score was used in all subsequent analyses.

The learning task scores were correlated with all of the variables describing aspects of the stimulus material. The major interest was in comparing the patterns of correlation for the two experiments. Several major differences were found. Paired associate performance correlates substantially with the measures of direct association (Joint Meaningfulness, Detection Value, and derived measures of associative overlap) while verbal discrimination performance correlates near zero with all such measures. Also, rating scales such as Similarity of Meaning and the Co-occurrence measures show opposite effects (positive in paired associates learning and negative in verbal discrimination learning). The general conclusion is that properties of the stimulus material play very different parts in the two tasks, and great caution must be exercised in generalizing results from one to the other.

A final section of the project demonstrated the utility of the normative data described above as a source of word-pairs for other experimental approaches. Three studies were completed addressed to the nature of the similar-opposite relationship. In particular, the hypothesis under test was that the similarity relationship was the more potent of the two. The experimental tasks were mediated generalization of a motor response and free recall. The hypothesis was not supported and the results were shown to be sensitive to the particular design employed.

SECTION IX

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APPENDIX A

MEAN SCALE VALUES FOR RATED MEANINGFULNESS, RATED IMAGERY, RATED EVALUATION, RATED FREQUENCY OF USAGE AND LOG THORNDIKE-LORGE FREQUENCY FOR 240 WORDS

Meaningfulness

The norms for rated Meaningfulness were collected from 110 introductory psychology students at Vanderbilt University in the Fall of 1965. The first terms from each of the 120 pairs were presented to a group of 55 students (39 males and 16 females), and the second terms from each pair to a second group of 55 students (31 males and 24 females). The words were listed in a mimeographed booklet and each word was typed above a seven-point scale, as, for example,

jail

:____:____:____:____:____:____:____:
1 2 3 4 5 6 7

The subject was told that the task was an associative one and that he was to indicate on the scale the number of things or ideas the word reminded him of. Numbers at the low end of the scale indicated a small number of associations and those at the high end of the scale a large number of associations. The last page of the booklet was detachable and described the seven-point scale in the following manner:

> "This is the rating scale to be used in your judgments of meaningfulness of words. Keep it in front of you as you look at each pair.
>
> :____:____:____:____:____:____:____:
> 1 2 3 4 5 6 7
>
> The numbers under the scale position are to be interpreted like this:
>
> 1. none
> 2. much fewer than the average word

3. fewer than the average word
4. about the same number as the average word
5. more than the average word
6. many more than the average word
7. extremely many"

Before rating any words, the subject was asked to read through the first 30 words to get a "feel" for the nature of the task. No time limit was placed on the task, but subjects were discouraged from lingering over items.

Each of the 240 terms in the 120 pairs was thus rated by 55 subjects. The mean scale value for each term is presented in the first column of Table A-1. For the 120 stimulus members of the word-pairs, the overall mean rating was 3.96. The overall mean for response members was 4.05. The corresponding standard deviations were 0.71 and 0.64 respectively.

The reliability of this rating scale was estimated by randomly dividing the two sets of ratings in half and correlating item values in one half with values given for the same items in the other half. The reliability coefficient was .95.

Imagery

The norms for rated Imagery were collected from 105 introductory psychology students at Vanderbilt University in the Fall of 1965. The stimulus members of each of the 120 pairs were presented to a group of 57 students (37 males and 20 females), and the response terms from each pair to a group of 48 students (27 males and 21 females). The words were listed in a mimeographed booklet and each word was typed above a seven-point scale, as, for example,

prison
:____:____:____:____:____:____:____:
1 2 3 4 5 6 7

The subject was asked to rate each word according to the ease and speed with which it aroused a sensory image or mental picture. The task was illustrated with the following example:

> "Suppose that you were given the word 'apple'. This would probably arouse a sensory image very quickly and very easily. You can readily imagine a round object with a glossy red hue. You might also note that the object has an indentation at the top and that a small stem sticks out at this location. There are perhaps portions of the surface that have a more greenish tinge as compared to the bright red of the other parts. In addition, you might be reminded of the sharp crack that results from taking a bite of an apple--and also the crunchy texture and tangy flavor that you notice in your mouth when eating an apple. In short, you have

a very strong sensory image associated with the word 'apple'. You would indicate this by checking the position marked '7' on the scale for that word:

:____:____:____:____:____:____:____:"
  1   2   3   4   5   6   7

The last page of the booklet was detachable and described the seven-point scale in the following manner:

"This is the rating scale to be used in your judgments of sensory imagery. Keep it in front of you as you look at each pair.

:____:____:____:____:____:____:____:
  1   2   3   4   5   6   7

The numbers under the scale position are to be interpreted like this:

1. extremely difficult--image aroused after long delay, or not at all
2. difficult
3. below the average word
4. about the same as the average word
5. above the average word
6. easy
7. extremely clear--image aroused immediately"

Before rating any of the words, each subject was asked to read through the first 30 words to get a "feel" for the nature of the task. No time limit was placed on the task, but subjects were discouraged from lingering over items.

Each of the 240 items from the pairs has thus been rated by at least 48 students. The mean scale values are listed in column two of Table A-1.*

The reliability of this rating scale was estimated by dividing the scale in half by an odd-even split and correlating item values in one half with values in the other half. The reliability coefficient was .91.

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*For the 120 stimulus members of the word-pairs, the overall mean rating was 5.13. The overall mean for response members was 5.07. The corresponding standard deviations were 0.49 and 0.80 respectively.

Evaluation

The ratings for Evaluation were gathered from incoming freshmen during orientation week in September, 1965. The 240 words were grouped into 6 sets of 40 words and each set was included in a booklet which also contained sections of the Noun Association, Adjective Association and Frequency of Usage tasks. 900 students participated in the complete test, 641 of whom were males and 259 were females. The proportion of males and females was approximately the same in all groups.

The 40 words were printed on two pages of a mimeographed booklet. At the top of each page was the following ten-point scale which the students were to use as a reference scale for making their judgments.

Unpleasant :___:___:___:___:___:___:___:___:___:___: Pleasant
1 2 3 4 5 6 7 8 9 10

Each word on the page was followed by a similar scale, as for example:

MONEY
Unpl :___:___:___:___:___:___:___:___:___:___: Pl
1 2 3 4 5 6 7 8 9 10

Students were instructed to rate the words for evaluation in the following manner:

> "We want you to look at each word in the list and judge whether you consider the object to which the word refers to be pleasant or unpleasant and how much. Then you are to check the scale point that you decide is appropriate for each word.

"To help clarify the task, we will consider some examples. Suppose that you were given the word VOMIT. You might consider the object to which this word refers very unpleasant. You would then mark position 1 on the scale:

Unpl : X : ___ : ___ : ___ : ___ : ___ : ___ : ___ : ___ : ___ : Pl
1 2 3 4 5 6 7 8 9 10

"On the other hand, suppose the word had been STEAK. You would probably judge a steak to be very pleasant. You would then mark position 10 on the scale:

Unpl : ___ : ___ : ___ : ___ : ___ : ___ : ___ : ___ : ___ : X : Pl
1 2 3 4 5 6 7 8 9 10

"Other words will fall at one of the middle points on the scale. One such word might be SHELF. You might find a shelf very faintly pleasant, in which case you would mark the scale thus:

Unpl : ___ : ___ : ___ : ___ : ___ : X : ___ : ___ : ___ : ___ : Pl
1 2 3 4 5 6 7 8 9 10

"Your task then is to judge the object each word refers to as pleasant or unpleasant. You are then to indicate the degree to which it is pleasant or unpleasant by marking the appropriate point on the scale."

Before starting the ratings, subjects were asked to read through the 40 words to get the "feel" of how the ratings distributed themselves. Subjects were urged to make their judgments carefully but not to spend too much time on each word.

The mean scale value for each of the 240 words appears in column 3 of Table A-1. Each of the values is based upon a rating by 150 students.*

The reliability of this scale was estimated by randomly dividing the protocols from the 900 subjects in half and correlating item values in one half with values given for the same items in the other half. The reliability coefficient was .99.

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*For the 120 stimulus members of the word-pairs, the overall mean rating was 6.01. The overall mean for response members was 5.86. The corresponding standard deviations were both 1.95.

Frequency of Usage

The ratings for Frequency of Usage were obtained from incoming freshmen during orientation week in September, 1965. The 240 words were grouped into 6 sets of 40 words and each set was included in a booklet which also contained sections of the Noun Association, Adjective Association and Evaluation tasks. 150 students received each booklet. Of the total of 900 students, 641 were males and 259 were females. The ratio of males to females was approximately the same for all groups.

The 40 words were printed on two pages. At the top of each page was a seven-point scale which students were to use as a reference in making their judgments:

Very low frequency :___:___:___:___:___:___:___: Very high frequency
1 2 3 4 5 6 7
Medium frequency

Each word on the page was followed by a similar scale, as, for example:

PEACE
Lo:___:___:___:___:___:___:___:Hi
1 2 3 4 5 6 7

Students were instructed to rate the words for frequency in the following manner:

> "This is a test to see how often you come in contact with certain words. Think for a moment about the word GLASS. How often do you encounter the word GLASS in print, conversation, in listening to radio or watching TV, etc.? You probably feel that you have seen or heard or used GLASS pretty frequently. You can indicate

this on the scale by checking position 6:

Very low :___:___:___:___:___:_X_:___: Very high
frequency 1 2 3 4 5 6 7 frequency
Medium
frequency

If you come in contact with GLASS _very_ often, you might check position 7:

Very low :___:___:___:___:___:___:_X_: Very high
frequency 1 2 3 4 5 6 7 frequency
Medium
frequency

Now think for a moment of the word MEGAPHONE. When you think of all the words you encounter each day, the frequency of MEGAPHONE is low relative to the frequency of most other words. You might check position 1 on the scale for MEGAPHONE:

Very low :_X_:___:___:___:___:___:___: Very high
frequency 1 2 3 4 5 6 7 frequency
Medium
frequency

For each word consider how often you encounter that word, relative to other words, and check the appropriate position on the scale."

Before starting the ratings, subjects were asked to read through the 40 words to get the "feel" of how the ratings were distributed. Subjects were urged to make their judgments carefully but not to spend too much time on each word.

The mean scale value for each of the 240 words appears in column 4 of Table A-1. Each value is based upon a rating by 150 subjects.*

The reliability of this scale was estimated by randomly dividing the protocols from the 900 subjects in half and correlating item values in one half with values given for the same items in the other half. The reliability coefficient was .99.

*For the 120 stimulus members of the word-pairs, the overall mean rating was 3.61. The overall mean for response members was 3.67. The corresponding standard deviations were 1.34 and 1.38 respectively.

Thorndike-Lorge Frequency

The values for Thorndike-Lorge frequency are the common logarithms of the frequency values given in the L count of the Thorndike-Lorge word count (25), based upon a survey of popular magazines. The particular count was chosen over the more commonly used G count because it provides a greater range of values and it gives a numerical value for all words.

The values for log Thorndike-Lorge frequency appear in column 5 of Table A-1. For the 120 stimulus members of the word-pairs, the overall mean log frequency was 2.36. The overall mean for response members was 2.31. The corresponding standard deviations were 0.67 and 0.66 respectively.

TABLE A-1

MEAN SCALE VALUES FOR RATED MEANINGFULNESS, RATED IMAGERY, RATED EVALUATION, RATED FREQUENCY OF USAGE AND LOG THORNDIKE-LORGE FREQUENCY FOR 240 WORDS

Word	Meaning-fulness	Imagery	Eval-uation	Frequency of Usage	Log Thorndike-Lorge Frequency
ALLIGATOR	3.45	5.17	3.01	1.54	1.64
ANTLERS	2.65	5.16	5.48	1.37	0.48
APE	3.36	5.14	3.81	1.82	0.95
APPLE	3.58	6.32	7.68	4.02	2.34
ASH	3.22	4.39	2.89	2.79	2.16
ATHLETE	4.95	5.42	7.75	4.49	1.52
AUTOMOBILE	5.31	6.44	8.76	5.73	2.68
AX	3.31	5.37	3.78	1.84	1.72
BABY	4.80	5.70	7.80	3.82	3.16
BACON	3.64	5.71	7.24	3.89	2.05
BALL	4.53	5.88	7.30	1.85	2.70
BANDIT	3.40	4.21	2.15	1.94	1.81
BANKER	3.71	4.18	6.81	2.88	2.18
BARN	4.47	5.96	6.00	2.72	0.95
BED	4.76	5.78	9.01	5.75	3.09
BEE	3.25	6.05	3.17	3.19	2.24
BEGGER	3.76	4.52	2.18	2.03	1.80
BIRD	4.27	5.54	7.07	4.60	2.59

TABLE A-1 Continued

Word	Meaning-fulness	Imagery	Eval-uation	Frequency of Usage	Log Thorndike-Lorge Frequency
BOAT	4.51	5.74	8.27	3.85	2.78
BOOK	5.40	5.79	7.31	6.37	2.84
BOTTLE	4.16	5.71	6.30	5.30	2.60
BOW	3.69	5.04	6.07	2.61	2.54
BOWL	3.40	5.29	5.87	3.60	2.43
BOY	4.80	5.39	7.56	5.71	3.20
BRICK	3.24	5.46	5.01	3.21	2.30
BRIDGE	3.84	5.75	6.47	4.02	2.67
BROTHER	4.84	5.42	8.23	4.89	2.82
BRUSH	3.84	5.19	6.29	4.57	2.61
BUG	3.65	4.70	2.98	4.01	1.53
BULLET	3.98	5.42	3.30	2.85	2.12
BUTTER	3.24	5.58	6.73	4.16	2.73
BUTTERFLY	3.38	5.75	7.43	2.02	1.81
BUTTON	3.05	5.18	5.46	3.90	2.29
CAN	3.53	5.92	5.07	4.83	3.83
CAR	4.86	6.00	8.59	6.46	3.35
CARPET	3.29	5.58	7.50	3.58	2.22
CASTLE	4.27	5.25	7.63	1.70	2.11
CAT	4.33	5.79	5.69	3.25	2.49
CEILING	2.93	4.96	5.19	3.64	2.25
CHEESE	3.25	5.54	6.61	3.10	2.43

TABLE A-1 Continued

Word	Meaning-fulness	Imagery	Eval-uation	Frequency of Usage	Log Thorndike-Lorge Frequency
CHILD	4.82	5.26	7.54	4.50	3.20
CHURCH	4.95	5.73	7.67	5.21	2.74
CITIZEN	4.82	3.44	6.81	3.65	2.52
CITY	4.93	5.60	6.86	4.99	3.10
CLAW	3.62	4.71	2.28	1.84	1.78
CLAY	3.29	4.40	4.72	1.87	2.03
CLOCK	4.25	5.40	5.65	5.09	2.37
CLOSET	3.38	4.74	5.03	4.48	2.21
CLOTHING	4.95	4.96	7.96	5.54	2.30
COAT	3.95	5.65	6.87	5.27	2.95
COFFEE	3.91	5.92	5.46	5.42	2.76
CORN	3.31	5.53	6.85	3.43	2.36
COURT	4.38	4.46	5.07	3.34	2.85
CROCODILE	2.98	5.04	2.81	1.27	0.85
CROWD	4.35	5.09	4.70	4.43	2.93
CURRENCY	4.23	5.00	3.35	2.93	1.61
DAGGER	3.84	5.32	2.95	1.64	1.04
DAWN	4.78	5.06	8.20	2.64	2.38
DEER	3.53	5.42	7.94	2.58	1.67
DEVIL	4.05	3.75	2.11	2.70	2.35
DIAMOND	4.47	5.68	8.51	2.52	2.40
DOCTOR	5.09	5.53	6.61	4.33	3.21

TABLE A-1 Continued

Word	Meaning-fulness	Imagery	Eval-uation	Frequency of Usage	Log Thorndike-Lorge Frequency
DOG	4.35	6.02	7.85	5.21	2.91
DREAM	4.71	3.51	8.07	3.02	2.97
DUCK	3.71	5.44	6.26	2.31	2.25
DUST	3.58	4.63	2.00	3.45	2.49
EAGLE	3.75	5.32	6.22	1.90	2.00
EGG	3.95	5.92	5.84	4.95	2.93
EMBLEM	3.78	3.72	6.28	2.13	1.18
ENEMY	4.16	3.23	1.48	3.87	2.95
ENGINE	3.93	4.58	6.23	3.36	2.42
ENVELOPE	3.38	5.48	6.63	4.53	2.34
FARM	4.42	5.89	7.12	3.28	2.92
FIELD	4.65	5.33	7.58	3.85	2.82
FIG	2.44	4.28	4.77	1.47	1.79
FINGER	4.02	5.90	6.33	4.01	2.93
FISH	3.42	5.21	6.01	3.04	2.78
FOOL	3.78	3.17	2.30	3.45	3.06
FOOT	3.75	5.32	5.37	4.07	2.70
FRIEND	5.28	4.89	9.43	6.26	3.41
FROST	4.22	5.00	5.36	2.55	1.98
FRUIT	4.33	5.13	8.08	4.75	2.80
GARBAGE	3.53	4.95	1.42	3.49	1.46
GENIUS	4.45	3.53	7.02	3.37	2.20

TABLE A-1 Continued

Word	Meaning-fulness	Imagery	Eval-uation	Frequency of Usage	Log Thorndike-Lorge Frequency
GERM	3.77	2.96	1.80	3.40	1.57
GIANT	3.89	4.74	4.16	2.26	2.03
GIN	4.20	4.44	4.63	2.93	1.71
GIRL	5.47	5.96	9.08	6.69	3.61
GLOVE	3.29	5.23	6.12	2.86	2.22
GOD	5.91	3.51	9.00	5.45	2.85
GOLF	4.02	5.04	7.12	4.17	2.44
GOOSE	3.02	4.51	5.02	1.69	1.74
GOVERNOR	3.98	4.23	5.49	3.90	2.30
GRAPE	3.44	5.74	7.56	3.05	1.94
GUN (Stimulus)	4.55	6.00	4.33	3.70	2.84
GUN (Response)	4.25	5.35	5.25	3.64	2.12
HAMMER	3.24	5.82	5.01	2.84	2.03
HAND	4.45	5.70	7.19	5.26	3.52
HARBOR	3.95	4.42	6.93	2.13	2.22
HAT	3.33	5.14	5.07	3.62	2.99
HATCHET	3.45	5.17	4.01	1.56	0.60
HEAD	4.87	5.26	6.85	5.10	3.70
HILL	4.73	5.65	7.14	3.59	2.53
HONEY	3.95	5.67	7.65	2.68	2.44
HOUR	3.80	2.88	5.36	5.17	3.40
HUT	3.55	4.42	4.57	1.47	1.62

TABLE A-1 Continued

Word	Meaning-fulness	Imagery	Eval-uation	Frequency of Usage	Log Thorndike-Lorge Frequency
INK	3.40	4.96	5.03	3.83	1.74
INSECT	3.82	5.04	2.64	3.70	1.96
INVALID	4.07	4.02	2.62	2.07	1.75
JAIL	3.82	5.32	1.80	2.77	2.27
JEWEL	4.18	5.21	8.16	2.71	2.18
JUSTICE	4.91	3.07	7.98	3.62	2.26
KID	4.33	4.00	5.70	4.30	2.90
KING	4.09	4.65	6.20	2.97	2.59
KITCHEN	4.55	5.69	7.63	5.65	2.98
KNIFE	3.69	5.63	4.78	4.08	2.40
LABEL	3.36	4.04	5.18	3.48	1.95
LAKE	5.18	6.08	8.55	4.23	2.61
LAMP	3.51	5.10	6.61	5.04	2.43
LEAF	4.09	6.29	6.64	3.08	2.19
LETTUCE	2.87	5.23	6.37	2.72	2.15
LIBRARY	4.64	5.63	6.97	4.57	2.64
LION	3.69	5.98	4.04	2.08	2.05
LIP	4.04	5.47	6.81	2.97	2.96
LIZARD	2.84	5.19	3.37	1.76	1.08
LOAFER	3.87	4.65	3.39	3.91	1.26
LOBSTER	3.71	5.08	6.59	2.16	1.65

TABLE A-1 Continued

Word	Meaning-fulness	Imagery	Eval-uation	Frequency of Usage	Log Thorndike-Lorge Frequency
LUNATIC	4.02	3.61	1.90	1.59	1.26
MAID	4.16	4.85	6.70	3.31	2.54
MAN	5.45	5.90	7.87	6.49	3.87
MEADOW	4.69	5.46	8.48	1.99	1.85
MICROBE	3.16	2.33	4.08	1.50	1.04
MIDGET	2.87	4.29	3.76	1.54	1.45
MILK	3.53	5.47	7.75	5.51	2.82
MINISTER	4.09	5.06	7.55	3.92	2.36
MINNOW	2.75	5.02	5.11	1.73	0.30
MINUTE	3.73	3.06	5.45	5.95	3.37
MOB	4.44	4.69	1.89	2.83	1.92
MONEY	5.16	5.94	8.96	6.54	3.49
MONKEY	3.62	5.17	5.67	2.18	1.81
MOON	4.51	5.86	8.11	4.03	2.45
MORNING	4.44	4.79	7.22	5.64	3.30
MORON	2.95	3.06	1.21	1.65	0.00
MOTHER	5.36	5.96	9.08	6.21	3.60
MOUNTAIN	4.49	5.74	7.78	3.71	2.46
MOUSE	3.44	4.94	3.03	1.87	1.68
NECKLACE	3.69	5.15	7.31	3.17	1.81
NEEDLE	3.62	5.89	3.87	2.87	1.94
NIGHT	5.44	5.38	7.86	5.43	3.53

TABLE A-1 Continued

Word	Meaning-fulness	Imagery	Eval-uation	Frequency of Usage	Log Thorndike-Lorge Frequency
OCEAN	4.91	6.00	8.10	3.40	2.07
OIL	3.60	4.98	4.68	3.54	2.73
ORANGE	3.44	5.86	8.06	3.31	2.55
ORGAN	4.38	5.25	6.95	2.70	2.08
OYSTER	3.04	4.33	4.25	1.83	2.24
PAINT	3.69	5.74	4.96	3.39	3.04
PAN	3.15	5.06	5.30	3.74	2.58
PAPER	4.04	4.93	5.84	5.84	3.09
PARTY	5.60	5.48	9.05	5.60	3.16
PEACE	5.00	2.92	8.44	5.07	2.67
PEAR	3.31	5.88	6.34	2.31	2.34
PEARL	3.80	5.47	7.97	2.41	1.81
PEN	3.65	5.33	6.45	4.80	2.16
PENCIL	3.62	5.96	5.51	5.70	2.27
PEOPLE	5.82	4.85	7.84	6.35	3.55
PEPPER	2.95	5.04	4.55	4.19	2.45
PHYSICIAN	4.95	5.71	6.85	3.89	2.28
PIT	3.55	5.15	2.66	1.65	1.91
POT	3.20	4.54	5.21	2.83	2.37
PRIEST	4.33	5.07	6.57	3.05	1.89
PRISON	3.91	5.52	1.40	2.56	2.41
RABBIT	3.75	5.69	6.70	2.85	1.98

TABLE A-1 Continued

Word	Meaning-fulness	Imagery	Eval-uation	Frequency of Usage	Log Thorndike-Lorge Frequency
RADIO	4.35	5.77	8.21	5.82	2.59
RAIN	4.69	5.61	5.92	5.57	2.57
RECORD	4.87	5.52	8.32	5.70	2.71
REPTILE	3.67	4.23	3.04	1.83	1.15
RESIDENT	3.75	3.19	6.10	3.42	1.67
RIBBON	3.84	5.19	6.80	2.98	2.17
RIFLE	3.60	5.40	5.50	2.91	2.26
RING	4.47	5.44	7.54	4.54	2.79
RIVER	4.44	5.88	7.59	4.62	2.66
ROAD	4.89	5.58	6.73	6.09	3.08
ROOM	4.15	5.46	6.85	6.04	3.58
ROSE	4.44	6.04	8.33	3.29	2.90
SAINT	4.20	3.54	7.66	2.25	2.07
SALT	3.38	5.04	6.41	5.12	2.83
SAW	3.58	5.06	4.66	2.53	3.39
SCOUT	3.76	4.56	6.13	2.35	2.03
SEA	5.25	5.92	8.26	4.03	2.77
SHEEP	2.84	5.25	5.25	2.39	1.93
SHELL	4.02	4.98	5.98	1.88	2.34
SHIP	4.56	5.23	7.31	3.39	2.83
SHIRT	4.22	5.71	7.24	5.63	2.42
SHOE	3.75	5.52	6.97	5.95	2.73

TABLE A-1 Continued

Word	Meaning-fulness	Imagery	Eval-uation	Frequency of Usage	Log Thorndike-Lorge Frequency
SINK	3.45	5.02	4.37	3.65	2.31
SINNER	4.02	2.71	2.40	2.88	1.30
SISTER	4.60	5.13	7.88	4.87	2.77
SKIRT	4.35	5.79	7.90	4.49	2.47
SMOKE	4.27	5.60	3.58	4.71	2.74
SNAKE	3.62	5.74	2.45	2.50	1.79
SOAP	3.49	5.51	7.14	4.76	2.28
SOLDIER	4.82	5.12	5.16	4.47	2.41
SPIDER	3.42	5.84	2.38	2.66	1.62
STAMP	3.78	5.49	6.09	4.49	2.42
STARS	4.82	5.98	8.67	3.52	2.72
STEAM	3.58	4.85	4.55	3.02	2.29
STEP	3.67	4.19	5.15	3.71	3.15
STORE	4.60	5.02	6.82	5.91	2.95
STOREHOUSE	3.27	3.44	5.00	2.05	0.90
STORM	4.95	5.27	4.60	4.37	2.59
STOVE	3.42	5.49	6.08	3.69	2.30
STREET	4.42	4.79	6.11	5.87	3.08
SUMMER	5.36	5.16	9.01	5.41	2.89
SYRUP	3.25	5.17	6.50	2.79	1.40
TELEVISION	4.56	6.02	6.97	5.64	1.15
TENNIS	3.84	5.60	7.44	3.70	2.33

TABLE A-1 Continued

Word	Meaning-fulness	Imagery	Eval-uation	Frequency of Usage	Log Thorndike-Lorge Frequency
THIEF	3.76	3.75	1.80	2.97	1.81
THORN	3.29	5.06	2.24	2.00	1.45
THUNDER	4.15	4.95	5.28	3.49	2.14
TIGER	4.25	5.85	3.95	2.55	2.01
TOBACCO	3.69	5.39	3.33	3.62	2.06
TOMATO	3.62	5.96	7.06	3.84	2.22
TOWN	4.93	5.06	7.09	5.09	3.21
TRIGGER	3.84	5.04	3.85	2.42	1.32
TROUT	3.56	4.90	7.19	2.08	1.46
TURTLE	3.05	5.42	5.04	1.97	1.32
TYPEWRITER	3.95	5.82	5.94	3.79	2.03
VINE	3.73	4.98	5.87	2.04	2.08
WAFFLE	2.95	5.88	6.69	2.45	1.72
WATCH	4.00	5.54	7.56	5.19	3.24
WATER	5.09	5.23	8.65	6.62	3.32
WEDDING	5.16	5.40	8.52	3.38	2.64
WHALE	3.27	4.85	4.88	1.41	1.26
WHISKEY	4.31	4.98	4.22	3.87	1.99
WIDOW	3.96	3.83	3.64	2.14	2.26
WINDOW	3.49	3.38	7.09	5.35	1.18
WOMAN	5.29	5.79	8.94	5.81	3.39

TABLE A-1 Continued

Word	Meaning-fulness	Imagery	Eval-uation	Frequency of Usage	Log Thorndike-Lorge Frequency
WOOL	3.78	4.90	6.35	4.09	2.26
WORKER	4.25	4.18	5.29	4.55	2.63
WORM	3.25	5.35	3.25	2.17	1.79
YOLK	2.55	4.67	4.24	1.73	1.46

APPENDIX B

MEAN SCALE VALUES FOR RATED WORD SIMILARITY, RATED CO-OCCURRENCE OF THE REFERENTS, RATED SYNTACTIC CO-OCCURRENCE AND RATED EASE OF LEARNING FOR 120 PAIRS

Word Similarity

The ratings for Word Similarity were obtained from students in an introductory psychology course at Vanderbilt University in January of 1964. The 120 word-pairs were presented in mimeographed booklets printed in two forms: forward, as in "Pen-Ink", and backward, as in "Ink-Pen". The forward form of the 120 pairs was presented to 33 students (21 males and 12 females) and the backward form to 30 students (18 males and 12 females). The total of 63 students was thus composed of 39 males and 24 females. In both forms of presentation the pairs occupied four pages, which were organized in four random orders.

Each word-pair in the booklet was followed by a seven-point scale. Subjects were instructed to look at each pair of words and judge how similar the two words were in meaning, then check the appropriate scale value. To clarify the task the following examples were given:

> "Suppose that you were given the pair 'child-youngster'. These words are clearly very similar in meaning and you might mark the scale under this pair like this:
>
> child - youngster

						X
1	2	3	4	5	6	7

> On the other hand, suppose the pair had been 'beggar-millionaire'. You would most probably judge this pair to be quite dissimilar in meaning and your decision would be recorded like this:

beggar - millionaire

:__X__:_____:_____:_____:_____:_____:_____:
   1   2   3   4   5   6   7

Other pairs will fall at one of the middle values of the scale. One such pair might be 'lady-hat'. These two words have some 'meaning' in common, but obviously they also differ in many ways. You could indicate this by checking as follows:

lady - hat

:_____:_____:_____:__x__:_____:_____:_____:"
   1   2   3   4   5   6   7

Subjects were instructed to use the detachable, last page of the booklet as a reference for their ratings. It described the scale as follows:

"This is the rating scale to be used in your judgments of word similarity. Keep this scale in front of you as you rate each pair.

very dissimilar in meaning :_____:_____:_____:_____:_____:_____:_____: very similar in meaning"
   1   2   3   4   5   6   7

moderate similarity in meaning

Before starting the ratings, subjects were asked to read through the first 30 pairs to get the "feel" of how the ratings distributed themselves. Subjects were urged to make their judgments carefully but not to spend too much on each pair.

The mean scale values for the 120 pairs appear in column 1 of Table B-1. Each of the values is based on a rating by at least 30 subjects.*

The reliability of this scale was estimated by correlating item values from the forward form with those from the same items in the backward form of the rating task. The product-moment correlation was .98.

*When the 120 pairs were presented in their forward order, the overall mean rating was 4.16. In the backward presentation, the mean was 4.30. The corresponding standard deviations were 1.50 and 1.52 respectively.

Co-occurrence of the Referents

The ratings for Co-occurrence of the Referents were obtained from students in an introductory psychology course in January, 1964 at Vanderbilt University. The 120 word-pairs were presented in mimeographed booklets printed in two forms: forward, as in "Pen-Ink", and backward, as in "Ink-Pen". The forward form of the 120 pairs was presented to 31 students (18 males and 13 females) and the backward form to 29 students (15 males and 14 females). The total of 60 students was thus composed of 33 males and 27 females. In both forms of presentation the pairs occupied four pages, which were organized in four random orders.

Each of the 120 pairs was followed by seven-point scale. The instructions included the following explanation of the task:

> "Think for a moment about the words 'dog-bone'. Ask yourself this question--If I should see a dog coming down the street, playing in a yard, or running across a field, what is the likelihood or probability that I would also see a bone in the picture? You might judge that the probability is 50 per cent or 80 percent or some other value. Suppose you decided upon 80 per cent. Then you would check the scale position corresponding to that value. In this case it would be position 6 as in this example:
>
> :_____:_____:_____:_____:_____:_____:_____:
>   1   2   3   4   5   6   7
>
> since 80 per cent falls in the range 70-95 per cent represented by that scale value.

Now suppose that the word-pair had been 'dog-earring'. In this case the likelihood that you would encounter a dog and that you would find an earring occurring at the same time is very low. You might decide in this case to select position 1 on the scale (0-5 per cent):

:_X_:____:____:____:____:____:____:
 1 2 3 4 5 6 7

For each pair consider the occurrence of the object referred to by the left hand word of each pair. Then you are to estimate the probability that the object referred to by the right hand word will co-occur in the same spatial setting."

The last page of the booklet was detachable and subjects were asked to use it as a reference in their ratings. It contained the following explanation of the scale:

"This is the rating scale to be used in your judgments of co-occurrence. Keep it in front of you as you look at each pair.

:____:____:____:____:____:____:____:
 1 2 3 4 5 6 7

The numbers under the scale positions are to be interpreted like this:

1. 0 - 5 per cent
2. 5 - 30 per cent
3. 30 - 50 per cent
4. about 50 per cent

5. 50 - 70 per cent

6. 70 - 95 per cent

7. 95 - 100 per cent"

Before starting his ratings, each student was asked to read through the first 30 pairs and mentally assign one of the seven scale positions to each in order to get a "feel" for the task. He was encouraged to make his judgments carefully but not to spend too much time on each pair.

The mean scale values for the 120 pairs appear in column 2 of Table B-1. Each of the values is based on a sample of at least 29 subjects.*

The reliability of the rating scale was estimated by correlating item values from the forward form of the task with values from matching items in the backward form of the task. The product-moment correlation was .78.

---

*When the 120 pairs were presented in their forward order, the overall mean rating was 4.76. In the backward presentation, the mean rating was 4.38. The corresponding standard deviations were 1.46 and 1.50 respectively.

Syntactic Co-occurrence

The ratings for Syntactic Co-occurrence were collected from students in an introductory psychology course in the Fall of 1965 at Vanderbilt University. The 120 word-pairs were presented in mimeographed booklets printed in two forms: forward, as in "Pen-Ink", and backward, as in "Ink-Pen". The forward form of the 120 pairs was presented to 53 students (28 males and 25 females) and the backward form to 53 students (33 males and 20 females). The total of 106 students was thus composed of 61 males and 45 females. In both forms of presentation the pairs occupied four pages, which were organized in four random orders.

Each word-pair was typed above a seven-point scale. The instructions explained the task in the following manner:

> "Think for a moment about the words 'dog-bone'. Look at the rating scale on the separate sheet and ask yourself this question--If I were to see a sentence with the word dog in it, how often would I also see the word bone in the same sentence. You might decide that this would happen 50% or 80% of the time-- or any other value. Suppose that you decided that this would happen about 80% of the time. Then you would check the scale position corresponding to that value. In this case it would be position 6 as in the example:
>
> :____:____:____:____:____:_X__:____:
> 1 2 3 4 5 6 7
>
> since 80% falls in the scale position represented by '6'.

'Now suppose that the word-pair had been 'dog-aardvark'. In this case the likelihood that you would encounter the word aardvark and dog in the same sentence is very low. You might decide in this case to select position '1' on the scale which corresponds roughly to 0% to 5%.

:__X__:____:____:____:____:____:____:
1 2 3 4 5 6 7

For each pair consider how often the two words would appear in the same sentence. Remember, that we are *not* asking how often the two things named would appear together as elements in the environment. We are asking about the *words*--how often would the two *words* of the pair occur in the same sentence."

Subjects were instructed to detach the last page of the booklet and use it as a reference in their ratings. It described the scale in the following manner:

"This is the rating scale to be used in your judgments of co-occurrence. Keep it in front of you as you look at each pair.

:____:____:____:____:____:____:____:
1 2 3 4 5 6 7

The numbers under the scale positions are to be interpreted like this:

1. 0 - 5 per cent
2. 5 - 30 per cent
3. 30 - 50 per cent

4. about 50 per cent

5. 50 - 70 per cent

6. 70 - 95 per cent

7. 95 - 100 per cent"

Before starting his ratings, each student was asked to read through the first 30 pairs and mentally assign one of the seven scale positions to each in order to get a "feel" for the task. He was encouraged to make his judgments carefully but not to spend too much time on each pair.

The mean scale values for the 120 pairs appear in column 4 of Table B-1. Each of the values is based on a sample of 53 subjects.*

The reliability of the rating scale was estimated by correlating item values from the forward form of the task with values from matching items in the backward form of the task. The product-moment correlation was 0.93.

---

*When the 120 pairs were presented in their forward order, the overall mean rating was 3.27. In the backward presentation, the mean rating was 3.29. The corresponding standard deviations were 1.02 and 1.04 respectively.

Ease of Learning

The ratings for Ease of Learning were collected from students in an introductory psychology course in January, 1964 at Vanderbilt University. The 120 word-pairs were presented in mimeographed booklets printed in two forms: forward, as in "Pen-Ink", and backward, as in "Ink-Pen". The forward form of the 120 pairs was presented to 31 students (16 males and 15 females) and the backward form to 29 students (15 males and 14 females). The total of 60 students was thus composed of 31 males and 29 females. In both forms of presentation the pairs occupied four pages, which were organized in four random orders.

Each word-pair was followed by a seven-point scale. The instructions illustrated the task in the following manner:

> "Think for a moment of the word pair 'table-chair'. Suppose you were shown this pair typed on a card and told to study it so that you could recall it later. Then suppose that at a later time you were shown a card with 'table' typed on it and asked which word went with table. Most probably you could easily recall that 'chair' was the word. If the pair had been 'table-wood' you might have found it a little more difficult to recall 'wood' as the correct response and if the pair had been 'basketball-ocean' you could experience considerable difficulty in remembering the right hand word of the pair.

For example, using the pairs mentioned above, you might decide to check as follows:

table - chair
:___:___:___:___:___:___:_X_:
1 2 3 4 5 6 7

table - wood
:___:___:___:_X_:___:___:___:
1 2 3 4 5 6 7

basketball - ocean
:_X_:___:___:___:___:___:___:
1 2 3 4 5 6 7

Look at each pair. If you judge it to be very difficult to learn, check position 1 on the scale and if you judge it to be very easy to learn, check position 7. Use the other points on the scale for items you judge to be of intermediate difficulty."

Subjects were instructed to detach the last page of the booklet and use it as a reference in their ratings. It described the scale in the following manner:

"This is the scale to be used in your judgments of ease of learning of the word pairs. Keep this scale in front of you as you rate each pair.

very difficult to learn :___:___:___:___:___:___:___: very easy to learn"
1 2 3 4 5 6 7
medium difficulty

Before starting the ratings, subjects were asked to read through the first 30 pairs and mentally rate them to get the "feel" of how the ratings distributed themselves. They were further urged to make their ratings carefully but not to spend too much time on each pair.

The mean scale value for each of the 120 pairs appears in column 3 of Table B-1. Each value is based on a sample of at least 29 subjects.*

The reliability coefficient of this rating scale was estimated by correlating item values from the forward form of the scale with values from corresponding items in the backward form. The product-moment correlation was .85.

---

*When the 120 pairs were presented in their forward order, the overall mean rating was 5.00. In the backward presentation, the mean rating was 4.91. The corresponding standard deviations were 1.17 and 1.22 respectively.

TABLE B-1

RATED WORD SIMILARITY, RATED CO-OCCURRENCE OF THE REFERENTS, RATED SYNTACTIC CO-OCCURRENCE AND RATED EASE OF LEARNING FOR THE 240 PAIRS

Pair	Word Similarity	Co-occurrence of the Referents	Ease of Learning	Syntactic Co-occurrence
Antlers - Deer	4.87	5.38	4.99	3.95
Ape - Monkey	6.19	4.76	5.29	3.11
Apple - Pear	4.46	3.03	4.04	2.35
Ash - Gin	1.72	2.21	1.41	1.33
Athlete - Invalid	1.16	1.59	3.54	1.51
Ax - Hatchet	6.56	4.79	5.93	2.66
Baby - Bottle	3.84	4.58	5.55	3.90
Ball - Golf	4.37	4.99	5.55	4.57
Bandit - Thief	6.60	5.83	5.43	2.38
Banker - Beggar	1.47	2.12	3.33	1.53
Bed - Lamp	2.99	4.87	4.09	2.80
Bee - Honey	4.57	4.72	6.47	5.00
Boat - Lake	4.15	5.89	5.13	4.33
Boy - Man	4.62	4.60	5.69	3.15
Brick - Clay	4.53	4.32	3.98	2.83
Bug - Insect	6.03	6.07	5.66	2.99
Bullet-Gun	4.77	5.90	5.99	4.42
Butter - Oil	4.73	4.02	3.47	2.28

TABLE B-1 Continued

Pair	Word Similarity	Co-occurrence of the Referents	Ease of Learning	Syntactic Co-occurrence
Butterfly - Worm	3.40	2.65	3.04	2.07
Button - Shirt	3.49	5.65	4.82	3.52
Car - Automobile	6.99	6.86	6.43	2.76
Carpet - Wool	3.67	4.12	3.69	3.08
Castle - Hut	1.48	2.09	3.64	1.69
Cheese - Mouse	3.80	3.61	5.61	3.74
Child - Kid	6.63	5.46	5.35	2.53
Citizen - Resident	5.40	5.82	3.69	2.59
City - Town	5.83	4.75	5.80	2.86
Claw - Lobster	4.60	5.21	4.48	3.38
Clock - Watch	6.42	4.52	5.95	3.02
Closet-Storehouse	4.66	3.18	3.08	2.17
Clothing - Store	3.65	4.75	4.58	3.70
Corn - Field	3.79	4.36	5.44	4.06
Court - Tennis	4.18	5.38	6.01	5.42
Crocodile-Alligator	5.81	3.59	6.13	2.82
Crowd - Mob	5.89	5.11	5.33	2.89
Currency - Money	6.72	6.53	5.32	2.77
Dagger - Knife	6.62	5.21	5.55	3.35
Diamond - Jewel	5.76	5.82	5.48	3.76
Doctor - Physician	6.81	6.69	6.26	2.89
Dog - Cat	2.81	3.81	6.84	3.73

TABLE B-1 Continued

Pair	Word Similarity	Co-occurrence of the Referents	Ease of Learning	Syntactic Co-occurrence
Dream - Night	4.20	5.16	4.43	3.79
Dust - Bowl	2.08	2.07	3.79	2.03
Eagle - Bird	5.68	4.15	4.80	2.81
Emblem - Label	5.21	4.11	3.11	1.99
Engine - Steam	3.97	3.39	5.39	3.30
Farm - Barn	4.68	6.30	4.65	3.62
Fig - Leaf	3.43	2.96	4.69	2.84
Fish - Trout	5.74	4.72	4.93	3.16
Foot - Shoe	4.34	6.18	5.90	4.01
Friend - Enemy	1.05	2.85	5.89	2.84
Garbage - Can	3.56	4.74	5.57	4.53
Genius - Moron	1.92	1.92	5.22	2.61
Germ - Microbe	5.69	4.81	4.30	2.87
Giant - Midget	1.17	2.96	5.58	2.61
Girl - Scout	3.39	3.19	5.67	3.21
Glove - People	1.82	3.30	1.62	1.42
God - Devil	1.19	3.02	5.74	3.25
Goose - Duck	5.58	3.62	5.05	2.66
Grape - Vine	4.38	4.41	6.09	4.36
Gun - Trigger	4.79	6.62	5.55	4.44
Hammer - Saw	4.09	5.10	5.02	3.47

TABLE B-1 Continued

Pair	Word Similarity	Co-occurrence of the Referents	Ease of Learning	Syntactic Co-occurrence
Hand - Finger	5.00	6.91	5.59	4.13
Harbor - Ship	3.94	5.86	5.39	4.50
Hat - Coat	4.14	5.00	6.20	4.17
Head - Organ	3.27	4.02	1.88	1.54
Hour - Minute	4.58	6.06	5.59	4.18
Jail - Prison	6.75	5.90	6.12	3.21
Justice - Peace	4.86	5.03	5.89	3.52
King - Governor	4.80	3.82	3.82	1.78
Lettuce - Tomato	3.79	4.59	5.48	4.74
Library - Book	5.01	5.90	5.77	5.23
Lion - Tiger	4.98	3.59	5.61	2.83
Lip - Bacon	1.37	1.97	1.46	1.10
Lizard - Reptile	5.84	5.67	4.68	3.12
Lunatic - Fool	5.09	4.02	4.02	2.35
Milk - Maid	2.77	2.49	4.38	2.22
Minnow - Whale	1.83	1.80	4.31	1.75
Moon - Stars	5.13	6.06	5.63	4.63
Morning - Dawn	6.05	5.85	5.30	3.29
Mother - Sister	3.96	3.72	4.49	3.06
Mountain - Hill	5.62	4.82	1.46	3.06
Needle - Record	3.72	4.71	4.38	3.19
Ocean - Sea	6.66	5.83	6.01	2.76

TABLE B-1 Continued

Pair	Word Similarity	Co-occurrence of the Referents	Ease of Learning	Syntactic Co-occurrence
Orange - Fruit	5.53	5.33	4.67	3.05
Oyster - Shell	3.85	4.81	5.20	4.28
Paint - Brush	4.35	5.40	5.98	4.55
Paper - Pencil	3.84	5.76	6.59	5.45
Pearl - Necklace	4.38	5.18	5.64	4.27
Pen - Ink	4.38	6.28	6.67	4.92
Pot - Pan	6.18	5.90	6.29	4.42
Priest - Minister	6.28	4.31	5.33	2.66
Radio - Television	4.69	4.48	6.11	4.03
Rain - Bow	2.73	2.12	4.84	3.12
River - Bridge	4.16	5.17	5.08	3.94
Room - Ceiling	3.84	3.74	3.74	2.88
Rose - Thorn	3.99	5.75	4.85	3.60
Saint - Sinner	1.23	3.23	5.98	2.95
Salt - Pepper	3.34	6.26	6.90	5.84
Sheep - Meadow	3.41	4.10	3.68	2.93
Sink - Kitchen	4.44	6.00	5.75	3.94
Snake - Pit	3.04	2.46	4.72	2.70
Soap - Water	3.75	5.10	5.80	4.61
Soldier - Rifle	4.11	4.96	5.01	4.45
Spider - Widow	2.77	1.77	3.59	2.23
Stamp - Envelope	4.49	5.92	5.41	4.54

TABLE B-1 Continued

Pair	Word Similarity	Co-occurrence of the Referents	Ease of Learning	Syntactic Co-occurrence
Step- Brother	1.96	1.64	3.31	1.88
Stove - Coffee	3.08	4.33	3.47	3.00
Street - Road	6.77	6.22	6.03	2.87
Summer - Church	1.69	2.82	1.92	1.47
Thunder - Storm	5.09	5.81	5.61	5.17
Tobacco - Smoke	4.84	5.91	5.89	4.64
Turtle - Rabbit	2.27	1.78	3.27	1.92
Typewriter-Ribbon	4.21	5.71	5.34	3.42
Waffle - Syrup	4.27	5.55	5.44	4.73
Wedding-Ring	4.65	5.73	5.83	4.40
Whiskey - Party	3.80	4.48	4.38	3.66
Window - Frost	2.92	3.04	3.10	2.59
Woman - Skirt	4.10	5.43	4.25	3.23
Worker - Loafer	1.23	3.37	3.97	2.19
Yolk - Egg	5.03	6.39	5.85	4.59

APPENDIX C

FREE ASSOCIATION NORMS FOR 240 WORDS

Free Association

The Free Association norms were collected from 350 incoming freshmen during orientation week in September, 1964 at Vanderbilt University. Two groups of students were each presented one half of the 240 words. The first group received the stimulus words from a random selection of 60 pairs and the response words from the remaining 60 pairs. The second group received the remaining 120 words. As a result, no student received both the stimulus and response members of any pair. Each group was composed of 350 students (240 males and 110 females).

The 120 stimulus words were randomized and listed vertically in a mimeographed booklet. Each word was followed by a horizontal line on which he was to write his association. The format and instructions followed closely those of Palermo and Jenkins (22). Instructions were given verbally:

> "When I tell you to open your booklets you will find a list of words. You are to write next to each word the first word that it makes you think of. It doesn't make any difference what word you write as long as the word on the paper makes you think of it. There are no right or wrong answers. The purpose of the test is just to see how quickly words come to your mind.

For example, suppose that coat is the word you see. Your job will be to write down the first word that coat makes you think of. For example, coat might make you think of hat or man or wear or brown or big or warm or you might think of some other word. Whatever the word is that you think of, write it down next to coat.

You are to do the same thing for each word in the list. When I tell you to start, I want you to work straight down the list as fast as you can. When you finish a page, go right on to the next one. Write only one word on each line, but do not skip any words and be sure to write clearly. We are going to time you and at the end of each five minutes we will display the number of minutes that it is taking you to finish. When you get through with all the words on the list write the number that is displayed on the card on the back page of your test. That will tell us how long it took you to finish the test."

Each of the 240 words served as a stimulus to free association for 350 students. The response hierarchies for each stimulus word are contained in Table C-1. The hierarchies are arranged alphabetically by stimulus word. The identification number following each stimulus indicates the pair (see Table 1) to which the word belongs. Hierarchies for males and females are listed in parallel for ease of comparison and for ease of combining, if desired. "Single" responses, that is, associations given by only one subject, are not listed. The number of single responses given to a particular stimulus word can be calculated by counting the number of different responses listed and subtracting from "Different Responses," since this category has included singles in its tally.

TABLE C-1

FREE ASSOCIATION NORMS FOR 240 WORDS

Males (N=240)	Females (N=110)
ALLIGATOR	ALLIGATOR
30 Crocodile	17 Crocodile
21 Swamp	13 Shoes
16 Shoes	9 Florida
14 Florida	8 Swamp
12 Crocadile	7 Green
10 Crocidile	5 Bag
10 Teeth	4 Purse
9 Green	3 Animal, Bite, Lizard, Reptile Teeth
8 Animal, Reptile	2 Big, Crocadile, Crocidile, Fish, River
7 Bag	0 Illegible
6 Belt, Water	0 Blank
5 Crockadile	110 Total Responses
4 Mouth, Purse	39 Different Responses
3 Dangerous, Hide, Leather, Lizard, Mean, Skin, Swamps	
2 Big, Crokodile, Eat, Everglades, Florida, Jaws, Pet, Tough, Wallet	
1 Illegible	
0 Blank	
240 Total Responses	
62 Different Responses	
ANTLERS	ANTLERS
135 Deer	67 Deer
28 Horns	10 Horns
15 Moose	5 Moose
5 Ant	4 Reindeer
4 Animal	3 Elk
3 Buck, Elk, Feel, Horn, Hunting, Tree	2 Animal, Ant, Raindeer
2 Beetle, Dear, Feelers, Hunt	0 Illegible
1 Illegible	0 Blank
0 Blank	110 Total Responses
240 Total Responses	23 Different Responses
42 Different Responses	

TABLE C-1 Continued

(N=240)	Females (N=110)
APE	APE
139 Monkey	66 Monkey
32 Man	14 Man
17 Gorilla	6 Gorilla
9 Hairy	3 Animal, Hairy
6 Jungle	2 Banana, Hair, Stupid, Tarzan
5 Animal	0 Illegible
4 Hair, Tarzan	0 Blank
3 Tree	110 Total Responses
2 Evolution, Football	19 Different Responses
2 Illegible	
0 Blank	
240 Total Responses	
26 Different Responses	
APPLE	APPLE
40 Red	27 Red
36 Tree	21 Tree
24 Pie	11 Pie
21 Eat	8 Orange
20 Orange	5 Eat
17 Pear	4 Fruit, Juicy, Pear
13 Fruit	3 Doctor
8 Core	2 Cherry, Core, Leaf, Seed, Worm
7 Cider	0 Illegible
6 Food	0 Blank
4 Good, Worm	110 Total Responses
3 Seed	27 Different Responses
2 Adam, Butter, Cart, Teacher	
0 Illegible	
0 Blank	
240 Total Responses	
46 Different Responses	
ASH	ASH
68 Tray	37 Tray
42 Fire	17 Cigarette

TABLE C-1 *Continued*

Males (N=240)	Females (N=110)
ASH (cont.)	ASH (cont.)
28 Cigarette	12 Fire
26 Tree	7 Tree
9 Cigar, Smoke	4 Burn, Can, Cigar, Smoke
7 Can	2 Grey
5 Burn	1 Illegible
3 Dirty, Heap, Wednesday	0 Blank
2 Fireplace, Wood	110 Total Responses
2 Illegible	27 Different Responses
0 Blank	
239 Total Responses	
43 Different Responses	
ATHLETE	ATHLETE
65 Football	24 Football
14 Jock, Sports	11 Boy
12 Strong	9 Foot
10 Ball, Foot, Run, Track	8 Sports
7 Sport	7 Big
5 Boy	6 Ball, Run
4 Basketball, Me, Play	5 Muscles
3 Big, Fast, Man, Runner	4 Strong
2 Endurance, Game, Muscle, Player, Power, Shoe, Star, Stupid, Sweat, Training	3 Game, Play
	2 Basketball, Fast, Games, Gym, Sport
0 Illegible	0 Illegible
0 Blank	0 Blank
240 Total Responses	110 Total Responses
66 Different Responses	30 Different Responses
AUTOMOBILE	AUTOMOBILE
141 Car	58 Car
8 Tire	5 Gas
7 Drive	4 Tire
4 Chevy, Fast, Speed	3 Fast, XKE
3 Ford, New, Ride, Travel	2 Drive, Go, New, Oldsmobile, Traffic, Travel
2 Buick, Cadillac, Gas, Mustang, Tires, Truck	0 Illegible

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
AUTOMOBILE (cont.)		AUTOMOBILE (cont.)	
0	Illegible	0	Blank
0	Blank	110	Total Responses
240	Total Responses	36	Different Responses
64	Different Responses		
AX		AX	
36	Chop	20	Tree
34	Handle	17	Chop, Cut
24	Cut	10	Wood
23	Tree, Wood	9	Handle
16	Sharp	6	Hatchet
13	Hatchet	5	Saw
8	Blade, Hammer	4	Hammer
6	Knife	3	Kill, Sharp
5	Grind, Saw	2	Blade
2	Hachet, Log, Murder, Stump	0	Illegible
2	Illegible	0	Blank
0	Blank	110	Total Responses
240	Total Responses	25	Different Responses
45	Different Responses		
BABY		BABY	
35	Cry	20	Cry
26	Boy	10	Boy
20	Girl	7	Small
19	Sitter	6	Sitter
15	Small	5	Child, Mother
13	Child	4	Cute, Girl, Tiny
11	Bottle	3	Doll, Infant, Love, Sweet
9	Diaper	2	Blue, Carriage, Life, Little, Sit, Soft
8	Little	0	Illegible
6	Crib, Doll, Infant, Young	0	Blank
5	Carriage	110	Total Responses
4	Mother, Sit	40	Different Responses
3	Soft		

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
BABY (cont.)		**BABY (cont.)**	
2	Blue, Face, Gentle, Kid, Marriage, Noise, Pink		
0	Illegible		
0	Blank		
239	Total Responses		
53	Different Responses		
BACON		**BACON**	
99	Eggs	41	Eggs
16	Food	15	Breakfast
16	Ham	13	Grease
12	Breakfast	7	Egg
11	Egg	5	Pig
11	Grease	4	Fat
8	Eat, Fat	3	Smell
7	Smell	2	Cheese, Crisp, Greasy, Ham
4	Good, Pig, Pork	0	Illegible
3	Crisp, Fry, Meat	0	Blank
2	Cheese, Frying, Greese, Lettuce, Rind, Salt	110	Total Responses
0	Illegible	25	Different Responses
0	Blank		
240	Total Responses		
40	Different Responses		
BALL		**BALL**	
98	Bat	41	Bat
21	Game	13	Bounce
17	Bounce	9	Game
14	Round	5	Play
10	Base	4	Red
8	Pen, Point	3	Base, Pen, Round
7	Baseball	2	Cat, Football, Hit, Jacks, Party, Point
6	Foot	0	Illegible
4	Basket, Football, Glove	0	Blank
3	Bowl, Dance, Play, Tennis	110	Total Responses
2	Fun	31	Different Responses
1	Illegible		

TABLE C-1 Continued

Males (N=240)	Females (N=110)
BALL (cont.)	BALL (cont.)
0 Blank	
239 Total Responses	
40 Different Responses	
BANDIT	BANDIT
45 Thief	22 Robber
40 Robber	11 Mask
24 Rob	11 Rob
16 Crook	8 Steal
12 Mask	7 Outlaw
11 Bad	5 Bad, Thief
11 Steal	4 Crook
5 Outlaw	3 Hold up, Holdup, Theif
4 Gun, Holdup	2 Bandana, Criminal, Gangster, Gun, Jail
3 Crime, Jail, Theif	0 Illegible
2 Badman, Cop, Cowboys, Criminal, Gang, Hold up, Killer, Money, Robbery, Stick up, Villa	0 Blank
3 Illegible	110 Total Responses
2 Blank	34 Different Responses
240 Total Responses	
56 Different Responses	
BANKER	BANKER
155 Money	84 Money
11 Bank	7 Bank
8 Lawyer, Man, Rich	3 Man, Rich
7 Teller	2 Teller
3 Fat	0 Illegible
2 Check, Clerk, Tall	0 Blank
1 Illegible	110 Total Responses
0 Blank	16 Different Responses
240 Total Responses	
43 Different Responses	

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
BARN		BARN	
47	Hay	18	Hay
22	Red	15	Red
21	Farm	13	Cow
17	Yard	10	Horse
15	Door	8	Door
14	Cow	7	Animals
12	Cows	6	Cows
9	Tobacco	5	Tobacco
7	House	4	Horses, Yard
6	Animals, Horse, Horses	3	Corn, Dance, House
5	Loft, Smell	2	Grain
4	Cattle, Corn	0	Illegible
3	Dance	0	Blank
3	Straw	110	Total Responses
2	Animal, Chicken, Store Tobacco	23	Different Responses
0	Illegible		
0	Blank		
240	Total Responses		
48	Different Responses		
BED		BED	
115	Sleep	50	Sleep
13	Sheet	10	Spread
11	Sheets	5	Linen, Sheets, Soft
11	Spread	4	Sheet
9	Room	3	Comfortable, Matress, Pillow, Blanket, Board, Cover, Make, Rest
6	Sex, Soft	0	Illegible
5	Post	0	Blank
4	Hard, Rest	110	Total Responses
3	Cover, Girl, Lay, Night	26	Different Responses
2	Clothes, Comfort, Feathers, Pillow, Spring, Stead, Time, Warm		
0	Illegible		
2	Blank		
240	Total Responses		
49	Different Responses		

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
BEE		BEE	
101	Sting	41	Sting
57	Honey	22	Honey
18	Hive	19	Hive
16	Bumble	6	Bumble
8	Buzz	3	Bug, Buzz
6	Insect	2	Yellow
5	Wasp	0	Illegible
4	Bug	0	Blank
3	Fly, Line, Queen	110	Total
2	Flower	21	Different Responses
1	Illegible		
0	Blank		
240	Total		
25	Different Responses		
BEGGAR		BEGGAR	
84	Poor	41	Poor
37	Money	11	Money
17	Bum	8	Man
7	Cup	5	Hungry
6	Mendicant, Thief	4	Thief
5	Poverty, Tramp	2	Ask, Food, Mendicant, Pauper, Poverty, Rags
4	Man	0	Illegible
3	Dirty, Ragged, Rags	0	Blank
2	Ask, Borrower, Fool, Give, Loafer, Pencils, Person, Shabby	110	Total
1	Illegible	39	Different Responses
0	Blank		
239	Total		
62	Different Responses		
BIRD		BIRD	
80	Fly	38	Fly
10	Feather, Nest	7	Nest
9	Air	6	Robin
8	Dog	5	Feather, Tree
7	Robin	4	Sky, Song, Sparrow
6	Sing, Wing	3	Cage, Dog, Feathers, Sing
5	Blue, Cat, Feathers	2	Blue, Red, Wing
4	Cage, Eagle, Gull, Plane, Seed, Song, Tree	0	Illegible
		0	Blank

TABLE C-1 *Continued*

Males (N=240)

BIRD (cont.)

3 Bath, Bee, Call, Watcher, Wings
2 Dove, Egg, Gun, Robbin, Seagull, Sky
0 Illegible
0 Blank
240 Total
63 Different Responses

BOAT

66 Water
31 Sail
24 Ship
22 Motor
18 Ski
11 Dock
6 Lake
4 Hook
3 Fun, House, Oar, Outboard, Paddle, River,
2 Fish, Harbor, Row, Shore, Yacht
1 Illegible
0 Blank
239 Total
47 Different Responses

BOOK

54 Read
39 Shelf
34 Page
21 Store
12 Cover
11 Pages
7 Paper
4 Study, Words
3 Novel, Print, Reading, Word
2 Big, Case, End, Good, Library, Mark, Reed, Story, Work

Females (N=110)

BIRD (cont.)

110 Total
34 Different Responses

BOAT

29 Sail
13 Water
9 Ship
8 Dock, Motor
7 Ski
3 Lake, Sailing, Skiing, Swim
2 Fun
0 Illegible
0 Blank
110 Total
33 Different Responses

BOOK

34 Read
18 Page
10 Shelf
8 Paper
5 Study
4 Cover, Pages
3 Mark
2 End
0 Illegible
0 Blank
110 Total
31 Different Responses

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
BOOK (cont.)		BOOK (cont.)	
3	Illegible		
0	Blank		
239	Total		
42	Different Responses		
BOTTLE		BOTTLE	
40	Beer	12	Beer
18	Coke, Ink, Milk, Top	10	Drink, Opener
17	Drink	9	Baby, Milk
14	Baby	7	Cap, Top
13	Glass	5	Coke, Glass
12	Opener	4	Can, Ink
9	Cap	3	Cork, Jar
5	Neck	2	Nipple, Stopper
4	Booze, Liquor, Whiskey	0	Illegible
3	Cork, Empty, Stopper, Water, Wine	0	Blank
2	Gin, Green	110	Total
2	Illegible	33	Different Responses
1	Blank		
240	Total		
45	Different Responses		
BOW		BOW	
164	Arrow	31	Arrow
14	Tie	18	Hair
9	Stern	16	Ribbon
8	Ribbon	15	Tie
3	Hair, Ox, Ship, Wow	4	Wow
2	Arrows, Boat, Curtsy, King, Scrape, Shoot	2	Boat, Curtsy, Dance
0	Illegible	0	Illegible
0	Blank	0	Blank
240	Total	110	Total
35	Different Responses	28	Different Responses

TABLE C-1 *Continued*

Males (N=240)		Females (N=110)	
BOWL		BOWL	
30	Ball	17	Spoon
28	Cereal	14	Ball
21	Dish	9	Dish
15	Soup, Spoon	6	Cereal, Soup
11	Sugar	5	Cup
7	Alley	4	Mix, Sugar
6	Cup, Game, Glass, Pins, Plate	3	Alley, Eat, Fruit, Mixing, Water
5	Food	2	Cake, Flowers, Food, Oatmeal, Round, Saucer
4	Milk, Pin, Rose, Salad, Water	0	Illegible
3	Round, Strike	0	Blank
2	Ceral, Eat, Finger, Football, Fruit, Fun, Lane, Mix, Mixing, Pot, Saucer, Toilet, Wash	110	Total
1	Illegible	37	Different Responses
0	Blank		
239	Total		
57	Different Responses		
BOY		BOY	
195	Girl	91	Girl
8	Scout	2	Love
7	Man	0	Illegible
3	Brother, Dog	0	Blank
2	Child, Kid, Male, Young	110	Total
0	Illegible	19	Different Responses
0	Blank		
239	Total		
24	Different Responses		
BRICK		BRICK	
61	House	38	House
47	Red	26	Red
17	Mortar	7	Stone
12	Building, Layer, Stone	6	Building
10	Mason	5	Wall
8	Cement, Wall	4	Bat
7	Build	3	Hard, Home, Layer, Mortar
6	Bat	2	Mason
4	Concrete, Hard	0	Illegible
3	Home	0	Blank
2	Heavy, Old, Straw, Throw	110	Total
2	Illegible	21	Different Responses
0	Blank		
240	Total		
37	Different Responses		

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
BRIDGE		BRIDGE	
51	River	20	Cards, Water
41	Cards	18	Game
28	Game	11	River
25	Water	9	Cross
14	Cross	4	Table
6	Crossing	3	Play
5	Span	2	Draw
3	Contract, Draw, Steel, Suspension	0	Illegible
2	Across, Card, Cars, Gap, Goren, Large, London, Stream, Tunnel	0	Blank
2	Illegible	110	Total
0	Blank	31	Different Responses
239	Total		
57	Different Responses		
BROTHER		BROTHER	
164	Sister	78	Sister
8	Big, Boy	4	Family
4	Family, Mother	3	Boy
3	Friend, Little	2	Bob, Mine
2	John, Kid, Man, Paul, Relation, Relative, Small	0	Illegible
0	Illegible	0	Blank
1	Blank	110	Total
239	Total	26	Different Responses
44	Different Responses		
BRUSH		BRUSH	
69	Hair	40	Comb
45	Paint	29	Hair
33	Comb	12	Paint
18	Teeth	4	Tooth
16	Tooth	3	Teeth
6	Fuller	2	Bristle
4	Bristles, Clothes, Fire	0	Illegible
2	Bristle, Bush, Clean, Scrub, Soft, Tree	0	Blank
44	Different Responses	110	Total
		26	Different Responses

TABLE C-1 Continued

Males (N=240)	Females (N=110)
BUG	BUG
64 Insect	19 Insect
16 Juice	10 Ant, Spider
12 Ant	8 Juice
11 Beetle, Spider	7 Crawl
9 Rug	6 Beetle
8 Bee, Fly, Small	3 Bee, Bite, Small
5 Bite	2 Bed, Black, Bother, Rug, Six
4 Black, Roach	0 Illegible
3 Dirty, Kill, Spray, Worm	0 Blank
2 Animal, Bad, Beatle, Bettle, Car, Crawling, June, Legs, Me, Mosquito, Squash	110 Total
1 Illegible	45 Different Responses
1 Blank	
240 Total	
71 Different Responses	
BULLET	BULLET
152 Gun	72 Gun
15 Shoot	7 Shoot
8 Kill, Rifle	4 Kill, Wound
5 Death	3 Rifle
4 Lead, Powder, Wound	2 Death, Hurt, Pistol, Shot
3 Cartridge	0 Illegible
2 Danger, Deadly, Fire, Hurt, Proof, Shot	0 Blank
0 Illegible	110 Total
1 Blank	21 Different Responses
240 Total	
39 Different Responsee	
BUTTER	BUTTER
79 Bread	34 Bread
19 Knife, Yellow	13 Yellow
16 Fly	11 Knife
9 Toast	7 Toast
6 Fat, Grease, Margarine	6 Melt
5 Margerine, Melt, Milk	4 Fly
4 Plate, Soft	3 Soft
3 Dish, Food, Oleo, Spread	2 Dish, Fattening, Greasy, Plate

TABLE C-1 Continued

Males (N=240)	Females (N=110)
BUTTER (cont.)	BUTTER (cont.)
2 Ball, Cow, Cream, Eat, Flies, Good, Knive, Peanut 0 Illegible 1 Blank 239 Total 52 Different Responses	0 Illegible 0 Blank 110 Total 35 Different Responses
BUTTERFLY	BUTTERFLY
34 Pretty 30 Insect 21 Fly 16 Moth 15 Net 10 Wings 9 Spring 8 Beautiful 6 Bug, Yellow 5 Beauty 4 Bird, Cocoon, Colorful, Flower 3 Caterpillar, Color, Life, Monarch, Wing 2 Biology, Collection, Flowers, Flutter, Graceful, Light, Madam, Swimming 0 Illegible 0 Blank 239 Total 60 Different Responses	16 Pretty 11 Moth 10 Yellow 9 Beautiful 6 Fly, Wings 4 Bird, Net 3 Beauty, Flutter, Free, Insect, Summer 2 Bug, Catch, Dainty, Flower, Graceful, Monarch 0 Illegible 0 Blank 110 Total 36 Different Responses
BUTTON	BUTTON
87 Shirt 31 Coat 27 Hole 19 Sew 10 Bow 7 Thread 4 Clothes, White 3 Badge, Bows, Down, Pearl 2 Bone, Eyes, Fasten, Needle, Off, Snap	22 Hole 15 Shirt 10 Coat, Sew 8 Dress 7 Bow 5 Blouse 4 Thread 3 Lost, Sweater 2 Big, Buttonhole, Fasten, Red, Sewing

TABLE C-1 Continued

Males (N=240)	Females (N=110)
BUTTON (cont.)	BUTTON (cont.)
0 Illegible 0 Blank 240 Total 45 Different Responses	0 Illegible 0 Blank 110 Total 28 Different Responses
CAN	CAN
81 Opener 36 Tin 21 Food 16 Open 9 Beans 6 Beer 5 Bottle, Can, Oil 4 Bathroom, Garbage 3 Can't, Soup 2 Corn, Do, Jail, Meat, Top 0 Illegible 3 Blank 240 Total 47 Different Responses	63 Opener 10 Tin 7 Open 4 Soup 3 Beans 2 Container, Cover, Food, Garbage, Jar 0 Illegible 0 Blank 110 Total 23 Different Responses
CAR	CAR
39 Drive 16 Auto 13 Fast 9 Ride, Truck, 6 Automobile, Go, Wheels 5 Door, Speed 4 Road, Run 3 Bus, Engine, Keys, Red, Theft, Transportation, Wash, Wreck 2 Blue, Buick, Chevy, Coat, Date, Driver, Ford, Fun, Gas, Gasoline, Motor, New, Pontiac, Street, Thief, Thunderbird, Tire, Train, Wheel 1 Illegible 5 Blank 239 Total 88 Different Responses	21 Drive 8 Auto 5 Bus, Go 4 Ride 3 Automobile, Road, Transportation, Travel, Truck 2 Boat, Fast, Motor, Move, Run, Wheels 0 Illegible 0 Blank 110 Total 56 Different Responses

TABLE C-1 Continued

Males (N=240)	Females (N=110)
CARPET	CARPET
74 Rug	41 Rug
29 Soft	15 Floor
20 Floor	9 Red
16 Bagger	8 Soft
13 Bag, Thick	6 Bagger
12 Red	5 Thick
11 Baggers	3 Bag, Tack
7 Tack	2 Luxurious, Quiet
5 Walk	0 Illegible
3 Room, Wall	0 Blank
2 House, Plush, Warm, Wool	110 Total
2 Illegible	26 Different Responses
1 Blank	
239 Total	
38 Different Responses	
CASTLE	CASTLE
47 King	20 King
18 Moat	7 Moat
11 Fort	6 Home
10 House, Knight	5 Beautiful, Tower
7 Big, Old, Stone	4 House, Palace, Stone
6 Fortress, Home, Knights,	3 Big, Queen
Rock, Wall	2 Sky, Stones, Story
5 Mansion, Palace	0 Illegible
3 Building, Rich, Sky, Spain	0 Blank
2 Chess, Dark, Dungeon, Heights,	110 Total
Hill, Huge, Large, Medieval,	56 Different Responses
Mountain, Princess, Sand,	
Scotland, Tower	
1 Illegible	
0 Blank	
239 Total	
75 Different Responses	
CAT	CAT
119 Dog	54 Dog
54 Mouse	16 Mouse
6 Sly	5 Purr
4 Bird	4 Fur
3 Fur, Soft	3 Black, Eyes

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
CAT (cont.)		CAT (cont.)	
2	Animal, Black, Claw, Eyes, Fish, Kitten, Pet, Pussy, Quick, Silent, Sneaky	2	Bird, Sneak, Tail
0	Illegible	0	Illegible
0	Blank	0	Blank
240	Total	110	Total
46	Different Responses	28	Different Responses
CEILING		CEILING	
50	Roof	21	High
36	Floor	18	Floor, Roof
20	High, Top	8	Wall, White
18	Wall	7	Light
13	Light, Room	5	Top
11	White	4	Room
7	Paint, Tile	2	Plaster, Sky
5	Walls	0	Illegible
4	Plaster	0	Blank
3	House, Sky, Up	110	Total
2	Bed, Cracked, Heigth, Low	27	Different Responses
0	Illegible		
0	Blank		
239	Total		
37	Different Responses		
CHEESE		CHEESE	
30	Cake	16	Yellow
22	Milk	9	Cake, Eat
17	Eat, Mouse	6	Bread, Crackers, Good
14	Yellow	4	Holes, Knife, Mouse
13	Swiss	3	Cracker, Rat
12	Food	2	Board, Food, Milk, Mold, Sharp, Swiss
9	Green	0	Illegible
8	Cracker, Crackers	0	Blank
6	Holes, Rat	110	Total
4	Butter, Cloth, Sandwich	45	Different Responses
3	Bread, Cut, Knife, Mice		
2	American, Blue, Hole, Moon, Pie, Smell		
57	Different Responses		

TABLE C-1 Continued

Males (N=240)	Females (N=110)
CHILD	**CHILD**
26 Mother	23 Mother
24 Small	18 Baby
22 Kid	8 Parent
20 Baby, Young	5 Small, Young
18 Boy	4 Little
8 Little	3 Father, Infant, Play
7 Father, Infant, Parent	2 Adult, Girl, Man, Sister, Toy
5 Brother, Son	0 Illegible
4 Adult, Cry, Parents, Play	0 Blank
3 Birth, Children, Girl, Love	110 Total
2 Daughter, Fun, Mine, Tot	42 Different Responses
1 Illegible	
0 Blank	
239 Total	
57 Different Responses	
CHURCH	**CHURCH**
33 God	17 God
30 Sunday	12 Sunday
18 Steeple	9 Worship
17 Religion	8 Steeple
9 Christ, Preacher	5 School
8 Worship	4 Quiet
7 Priest	3 Pew, Pray, Religion
6 Go, Minister	2 Baptist, Choir, Cross, Goer, Priest, Reverence, Small, Worker
5 Holy, Synagogue	0 Illegible
4 Catholic, Reverence	0 Blank
3 Episcopal, School	110 Total
2 Attend, Baptist, Bell, Bells, Building, Chapel, Glass, Good, Group, Peace, People, Pew, Prayer, Presbyterian, Service, White	47 Different Responses
0 Illegible	
0 Blank	
240 Total	
73 Different Responses	
CITIZEN	
22 Man	
20 Country, Person	
18 Good	
17 U.S.	

TABLE C-1 Continued

Males (N=240)	Females (N=110)
CITIZEN (cont.)	CITIZEN (cont.)
13 American 9 America 6 Patriot, State, United States 5 Honor, People 3 Bank, Government, Member, Responsible, Voter 2 Band, Council, Democracy, Duty, Friend, Hearst, Kane, Mayor, Politics, President, Resident, Town, U.S.A., Vote, White 1 Illegible 0 Blank 239 Total 78 Different Responses	14 American 11 Country, Man 9 Vote 8 Person 6 Good, U.S. 5 America 4 Government 2 Law, People, U.S.A. 1 Illegible 0 Blank 110 Total 41 Different Responses
CITY	CITY
56 Town 21 State 17 Country 12 Nashville 10 People 8 Atlanta 6 Street 5 Memphis 4 Buildings, Dump, Large, Streets 3 Chicago, Council, Crowds, Government, Home, Metropolis, Smog 2 Big, Busy, County, Crowd, Dirty, Metro, Nation, New York, Police 2 Illegible 1 Blank 239 Total 74 Different Responses	32 Town 8 Nashville, State 6 Country, Large 4 Bustle, Street 3 Buildings 2 Busy, County, Noise, Noisy, People, St. Louis, Traffic, Village 0 Illegible 0 Blank 110 Total 39 Different Responses
CLAW	CLAW
23 Scratch 20 Crab 16 Hand 12 Sharp 11 Hammer, Lobster 9 Bird, Eagle, Paw	13 Scratch 10 Crab 8 Cat, Sharp 7 Bird, Talon 5 Paw 4 Foot, Hurt, Nail

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
CLAW (cont.)		CLAW (cont.)	
7	Nail, Talon	3	Fang, Lobster
6	Foot, Hook, Lion	2	Bear, Fish, Nails, Rip, Tooth
5	Cut, Tiger	0	Illegible
4	Animal, Cat, Grab, Tear	0	Blank
3	Hoof, Hurt, Nails, Tooth	110	Total
2	Blood, Dog, Fang, Fear, Fight, Finger, Grasp, Hack, Injury, Monster, Spider	41	Different Responses
2	Illegible		
0	Blank		
239	Total		
60	Different Responses		
CLAY		CLAY	
38	Mold	21	Mold
30	Dirt	12	Red
21	Mud	10	Mud
16	Red	7	Dirt, Pottery
10	Cassius	6	Model
8	Pottery	4	Soil
7	Soil	3	Pot, Sand
6	Pigeon, Soft	2	Bowl, Gray, Modeling, Wet
5	Henry, Modeling, Sculpture	1	Illegible
4	Hard, Statue	0	Blank
3	Brick, Ground, Model, Putty	110	Total
2	Alabama, Build, Earth, Gray, Make, Messy, Pot, Vase	41	Different Responses
1	Illegible		
0	Blank		
239	Total		
71	Different Responses		
CLOCK		CLOCK	
146	Time	65	Time
16	Tick	10	Alarm, Tick
14	Watch	4	Hands
8	Radio	3	Radio
7	Hands	2	Hand, Watch
6	Alarm	0	Illegible
5	Wall	0	Blank
4	Hand	110	Total
		21	Different Responses

TABLE C-1 Continued

Males (N=240)

CLOCK (cont.)

3	Face, Wind
2	Dial, Strike, Twelve
2	Illegible
2	Blank
239	Total
30	Different Responses

CLOSET

127	Clothes
33	Door
7	Close, Storage
6	Hanger, Space
5	Cloths, Dark, Room
4	Coat
3	Broom, Hangers, Shelf
2	Cloth, Drawer, Full
0	Illegible
0	Blank
239	Total
35	Different Responses

CLOTHING

42	Shirt
28	Wear
18	Hat
16	Warm
14	Coat
11	Pants
7	Store
6	Suit
5	Dress, Money, Shirts
4	Shoe
3	Apparel, Clothes, Hot, Nice, Shoes, Tie
2	Body, Closet, Cover, Girl, Good, Material, Neat, New, Red, Stores, Warmth
0	Illegible
0	Blank
240	Total
68	Different Responses

Females (N=110)

CLOCK (cont.)

CLOSET

64	Clothes
14	Door
5	Space
2	Broom, Close, Dark, Hangers
0	Illegible
0	Blank
110	Total
26	Different Responses

CLOTHING

34	Dress
12	Wear
11	Warm
7	Coat
5	Dresses
4	Closet, Skirt
3	Neat
2	Hat, New, Sweater
0	Illegible
0	Blank
110	Total
35	Different Responses

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
COAT		COAT	
59	Hat	23	Hat
31	Tie	22	Warm
28	Warm	9	Cold
13	Hanger, Wear	8	Tie
8	Pants	5	Dress, Fur, Hanger
6	Button, Winter	3	Hangar, Rain, Winter
5	Cold	2	Collar, Man, Sweater
4	Fur	0	Illegible
3	Arms, Heavy, Jacket, Man, Shirt, Suit, Wool	0	Blank
2	Clothes, Girl, Glove, Gray, Mink, Rain, Sweater, Warmth	110	Total
0	Illegible	31	Different Responses
0	Blank		
240	Total		
55	Different Responses		
COFFEE		COFFEE	
45	Tea	19	Cup
22	Black	18	Tea
20	Drink	16	Black
17	Cream	12	Pot
15	Cup	6	Cream
11	Hot, Sugar	5	Drink, Hot
9	Pot	2	Awake, Bad, Morning, Sugar
7	Morning	0	Illegible
6	Break, Good	0	Blank
4	Breakfast, Brown, House	110	Total
3	Grounds, Milk, Smell	32	Different Responses
2	Awake, Bean, Doughnut, Instant, Nut, Shop, Sleepy, Strong, Taste		
1	Illegible		
0	Blank		
240	Total		
57	Different Responses		

TABLE C-1 Continued

Males (N=240)

CORN

53 Cob
23 Food
21 Yellow
15 Flakes
14 Eat, Field
9 Husk
7 Farm, Stalk
4 Liquor
3 Crop, Fields, Grow, Plant,
2 Ball, Butter, Crib, Ear, Foot, Good, Grain, Green, Pop, Silk, Silks, Stalks, Sweet, Tall
2 Illegible
0 Blank
240 Total
59 Different Responses

COURT

74 Judge
24 Tennis
23 Justice, Law
11 House
9 Room, Trial
7 Jury
6 Supreme
5 Jail
4 Yard
3 Date, Kangaroo
2 Fine, Jester, Judicial, King, Lawyer, Queen, Ticket, Trouble
0 Illegible
0 Blank
240 Total
44 Different Responses

Females (N=110)

CORN

30 Cob
11 Yellow
10 Field
7 Stalk
4 Flakes
3 Eat, Silk, Wheat
2 Butter, Ear, Farm, Food, Green, Husk
0 Illegible
0 Blank
110 Total
41 Different Responses

COURT

33 Judge
12 Tennis, Trial
7 Law
3 Guilty, Justice, Lawyer, Robe, Room, Yard
2 House, Jury, King, Queen
0 Illegible
0 Blank
110 Total
34 Different Responses

TABLE C-1 Continued

Males (N=240)

CROCODILE

72 Alligator
23 Swamp
16 Teeth
12 Aligator, Water
10 River
9 Animal
5 Danger, Tears
4 Florida, Reptile
3 Bite, Eat, Snake
2 Africa, Amazon, Bag, Jungle, Mean, Nile, Shoes, Skin, Ugly
1 Illegible
0 Blank
239 Total
62 Different Responses

CROWD

111 People
29 Mob
10 Group, Many
5 Hot
4 Mass
3 Fun, Gathering, Large
2 Close, Confusion, Game, Gang, Masses, Noise, Riot, Small
1 Illegible
0 Blank
239 Total
61 Different Responses

CURRENCY

189 Money
5 Cash, Dollar
4 Bills, Coin
3 Exchange, Green
2 Change, Spend
0 Illegible
0 Blank
239 Total
31 Different Responses

Females (N=110)

CROCODILE

37 Alligator
13 Teeth
9 Swamp
6 Animal
5 Water
4 Green
3 Aligator, Bite, Florida, Tears
2 Reptile, Smile
0 Illegible
0 Blank
110 Total
32 Different Responses

CROWD

41 People
12 Mob
7 Many
6 Noise
5 Mass
4 Group
3 Hot
2 Big, Large
0 Illegible
0 Blank
110 Total
37 Different Responses

CURRENCY

89 Money
3 Coins
2 Change, Economics, Silver
0 Illegible
0 Blank
110 Total
17 Different Responses

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
	DAGGER		DAGGER
128	Knife	44	Knife
17	Kill	10	Sword
15	Sword	8	Blood, Stab
10	Cloak	7	Macbeth
7	Death, Stab	6	Kill
6	Blood, Macbeth	4	Sharp
4	Dirk, Murder	3	Hamlet
3	Blade, Cut, Sharp	2	Mystery, Scabbard, Spear
2	Hurt, Sheath	0	Illegible
0	Illegible	0	Blank
0	Blank	110	Total
239	Total	25	Different Responses
37	Different Responses		
	DAWN		DAWN
44	Morning	18	Sun
41	Sun	14	Morning
23	Dusk	9	Early
19	Early	8	Pink
12	Light	7	Day
11	Day, Sunrise	5	Dusk, Light
10	Sunset	3	Beautiful, Pretty, Sunset
6	Evening	2	Evening, Fresh, Sky
4	Night	0	Illegible
3	Beautiful, Beauty, Daylight	0	Blank
2	Daybreak, Dust, Pink, Red, Sky	110	Total
0	Illegible	42	Different Responses
0	Blank		
239	Total		
57	Different Responses		
	DEER		DEER
41	Forest	19	Doe
29	Doe	16	Forest
19	Hunt	6	Fawn
12	Animal	5	Hunt
11	Fawn	4	Antler, Antlers
8	Gun, Shoot	3	Antelope, Brown, Horn, Horns
7	Antler	2	Animal, Buck, Crossing, Gun, Hunter, Mild, Pretty,
6	Antlers, Buck, Fast		
5	Bambi, Hunting, Run		

TABLE C-1 Continued

Males (N=240)

DEER (cont.)

4	Brown, Horns, Woods
3	Bear, Crossing, Dear, Food, Horn, Moose, Rifle
2	Forrest, Hunter, Swift
0	Illegible
0	Blank
239	Total
59	Different Responses

DEVIL

31	Hell
29	Bad
24	Satan
22	Evil
17	Red
12	Angel
6	Demon, God, Horns, Saint, Sin
5	Mean, Satin
3	Advocate, Black, Lucifer, Tempt
2	Angle, Blue, Fire, Fork, Good, Hate, Tail, Temptation, Webster, Women
0	Illegible
3	Blank
240	Total
57	Different Responses

DIAMOND

63	Ring
18	Hard
12	Sparkle
11	Gem
10	Expensive
9	Head, Money, Rich
8	Carbon, Cut, Ruby
5	Shiny
4	Pretty, Stone, Wedding
3	Bright, Clear, Crystal, Pearl, Shine

Females (N=110)

DEER (cont.)

2	Run, Shoot
0	Illegible
0	Blank
110	Total
45	Different Responses

DEVIL

23	Red
13	Bad
12	Angel
11	Satan
9	Evil
6	Hell
5	Horns
3	God, Sin
2	Horn, Mean, Saint, Tail, Wicked
0	Illegible
0	Blank
110	Total
29	Different Responses

DIAMOND

38	Ring
10	Sparkle
5	Bright
4	Engagement
3	Beautiful, Shine
2	Carbon, Coal, Expensive, Gem, Hard, Jewel, Marriage, Wedding
0	Illegible
0	Blank
110	Total
45	Different Responses

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
DIAMOND (cont.)		DIAMOND (cont.)	
2	Beautiful, Girl, Glass, Jim, Mine, Necklace, Pin, Wear		
1	Illegible		
1	Blank		
239	Total		
52	Different Responses		
DOCTOR		DOCTOR	
48	Nurse	33	Nurse
31	Lawyer	12	Sick
18	Medicine, Sick	11	Lawyer
15	Help	8	Medicine
7	Heal	4	Help
6	White	3	Cure, Hospital
5	Sickness	2	Heal, Health, Shots, Sickness
4	Cure, Fix, Helper, Office, Smart	0	Illegible
3	Father, Good, Hospital, Illness, Pain	0	Blank
2	Clean, Life, Medic, Patient, Shot	110	Total
3	Illegible	39	Different Responses
0	Blank		
239	Total		
66	Different Responses		
DOG		DOG	
134	Cat	73	Cat
8	Pet	7	Pet
7	Bite, Friend	4	Bark
6	Bark	2	Black, Love, Puppy
5	Animal	0	Illegible
4	Friendly	0	Blank
2	Back, Catcher, Fur, George, Girl, Hound, Tag, Tree	110	Total
3	Illegible	26	Different Responses
5	Blank		
239	Total		
59	Different Responses		

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
DREAM		DREAM	
51	Sleep	33	Sleep
21	Nightmare	10	Nightmare
20	Night	9	Night
16	Girl	8	Vision
14	Vision	5	Day
10	Day	3	Boat, Clouds
8	Think	2	Fantasy, Nice, Pleasant, World
7	Boat	1	Illegible
6	World	0	Blank
5	Bad, Good	110	Total
4	Cloud, Nice, Pleasant	41	Different Responses
2	Bed, Clouds, Fantasy, Fun, Happy, Illusion, Land, Love, Sweet, Unreal, Wonderful		
0	Illegible		
2	Blank		
239	Total		
65	Different Responses		
DUCK		DUCK	
66	Water	22	Water
28	Goose	16	Quack
12	Bird	10	Goose
9	Geese, Pond, Quack	6	Feathers
7	Donald, Feathers	5	Swim
4	Animal, Chicken, Feet, Gun, Hunt, Hunting, Shoot, Swim, Yellow	4	Donald, Geese
3	Bill, Feather, Lake, Waddle	3	Fly, Pond, White
2	Geece, Hunter, Wet, White	2	Bird, Feather, Hunting, Lake, Waddle, Web
1	Illegible	0	Illegible
0	Blank	0	Blank
239	Total	110	Total
60	Different Responses	38	Different Responses
DUST			
66	Dirt		
17	Dirty		
16	Storm		
9	Bowl		
7	Mop, Sneeze		

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
DUST (cont.)		DUST (cont.)	
6	Clean, Cloth	28	Dirt
5	Road, Sand, Wind	7	Clean
4	Air, Dry	6	Dirty
3	Dawn, Smoke	4	Bowl, Cloth, Mop, Sneeze
2	Bad, Brown, Choke, Cough, Devil, Field, Ground, Sweep, Wipe	3	Cough, Road, Storm, Thick, Wipe
		2	Brown, Rag, Sweep, Wind
2	Illegible	0	Illegible
2	Blank	1	Blank
240	Total	110	Total
79	Different Responses	45	Different Responses
EAGLE		EAGLE	
79	Bird	31	Bird
30	Fly	20	Fly
18	Bald	6	America
12	Scout	3	Bald
8	Nest	2	Beak, High, Nest, Scout, U S A, Wing
6	Claw		
5	America, Soar		
4	Beak, High		
3	Strength, U. S.,		
2	Big, Eyes, Feather, Feathers, Hawk, Majestic, Mighty, Mountains, Rank, Symbol, U.S.A., Vulture		
0	Illegible	0	Illegible
0	Blank	0	Blank
239	Total	110	Total
62	Different Responses	48	Different Responses
EGG		EGG	
43	Chicken	13	Chicken
17	Breakfast	10	Breakfast
12	Yolk	7	Fried
11	Hen, Shell	6	Bacon, Bird, Easter
10	White	5	Eat, Yolk
9	Bacon, Bird, Fried, Scrambled	4	Hen
8	Easter	3	White
7	Break, Eat	2	Beater, Break, Fry, Life, Nog, Scrambled, Yellow

TABLE C-1 Continued

Males (N=240)	Females (N=110)
EGG (cont.)	EGG (cont.)
6 Plant	0 Illegible
5 Toast	0 Blank
4 Lay	110 Total
3 Beater, Birth, Chick, Food, Ham, Nest, Nog, Yoke	49 Different Responses
2 Boil, Dozen, Good, Hatch, Oval, Sperm	
0 Illegible	
0 Blank	
239 Total	
56 Different Responses	
EMBLEM	EMBLEM
20 Sign	19 Sign
19 Symbol	13 Seal
16 Badge	9 Blazer
14 Insignia	6 School, Symbol
13 Seal	4 Crest, Flag, Insignia, Motto
8 Crest, School	3 Gold, Medal
7 Star	2 Badge, Decal, Ensignia, Pin
6 Flag	0 Illegible
5 Eagle, Party, Patch	0 Blank
4 Medal	110 Total
3 Banner, Club, Ensignia, Gold, Scouts, Shield	41 Different Responses
2 Army, Blazer, Coat, Coat of Arms, Country, Decal, Frat, Marine, Mark, Motto, National, Pin, Sports, Stamp, Standard, Sticker	
0 Illegible	
3 Blank	
240 Total	
92 Different Responses	
ENEMY	ENEMY
67 Friend	30 Friend
23 Foe	10 Hate, War
19 Russia	9 Foe
14 War	5 Bad
10 Hate	4 Fear, Russia

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
ENEMY (cont.)		**ENEMY (cont.)**	
9	Fight	3	Hostile
7	Bad	2	Communist, Gun, Opponent, Reds
6	Hostile, Kill	0	Illegible
4	Opponent, Russians	0	Blank
3	Dislike	110	Total
2	Against, Communist, Gun, Jap, Kentucky, Mean, Men, Mine, Red, Soldier	39	Different Responses
0	Illegible		
2	Blank		
240	Total		
68	Different Responses		
ENGINE		**ENGINE**	
50	Car	30	Train
39	Motor	14	Car
28	Train	13	Motor
19	Fire	11	Fire
11	Gas	5	Run
10	Steam	4	Gas, Smoke
8	Machine	3	Red, Steam
6	Piston	2	Locomotive, Machine, Move, Noise
5	Power, Start	0	Illegible
4	Run	0	Blank
3	Engineer, Noise, Oil	110	Total
2	Airplane, Exhaust, Fast, Gasoline, Locomotive, 143,	28	Different Responses
0	Illegible		
1	Blank		
240	Total		
53	Different Responses		
ENVELOPE		**ENVELOPE**	
166	Letter	69	Letter
15	Stamp	9	Stamp
10	Mail	7	Lick
9	Lick	4	Letters
5	Paper, Write	3	Mail, White, Write
4	Glue	2	Paper, Seal
3	Seal, White	0	Illegible
2	Stick, Sticky	0	Blank
		110	Total
		17	Different Responses

TABLE C-1 Continued

Males (N=240)

ENVELOPE (cont.)

1 Illegible
0 Blank
239 Total
25 Different Responses

FARM

36 Cow
31 Animals
26 Animal
15 Tractor
11 House
10 Farmer
9 Cows
6 Chicken, Country, Horse, Land
5 Hand
4 Boy
3 Barn, City, Crops, Pig
2 Cattle, Duck, Fence, Food, Grass, Grow, Work
1 Illegible
1 Blank
239 Total
64 Different Responses

FIELD

30 Grass
17 Stream
16 Football
13 Corn
10 Meadow, Wheat
9 Open
7 Forest
6 Farm, Play, Plow
5 Cotton, House, Mouse, Pasture, Trip
4 Green
3 Ball, Baseball, Crop, Glasses, Grain, Hand, Tobacco
2 Goal, Grassy, Grow, Hay, Land, Large, Marshall, Run, Sport, Tomato

Females (N=110)

ENVELOPE (cont.)

FARM

21 Cow
17 Animals
16 Animal
7 House
6 Country, Horse, Pig
5 Cows
3 Dog
2 Barn, Boy, Duck, Green
0 Illegible
0 Blank
110 Total
28 Different Responses

FIELD

12 Football, Grass
9 Corn
6 Flowers, Meadow, Stream
5 Plow
4 Cotton, Green
3 Farm, Play, Trip
2 Daisies, Free, Wheat
1 Illegible
0 Blank
110 Total
45 Different Responses

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
FIELD (cont.)		FIELD (cont.)	
0	Illegible		
1	Blank		
239	Total		
72	Different Responses		
FIG		FIG	
75	Tree	34	Tree
44	Newton	18	Newton
22	Fruit	16	Fruit
14	Eat	6	Eat, Leaf
13	Leaf	5	Date
11	Date	4	Cookie
7	Bar	2	Adam, Good
4	Cookie, Food, Olive	0	Illegible
3	Preserves, Prune	0	Blank
2	Adam, Fat, Grape, Nuts, Plum	110	Total
0	Illegible	26	Different Responses
2	Blank		
240	Total		
41	Different Responses		
FINGER		FINGER	
51	Hand	24	Nail
30	Nail	20	Hand
25	Ring	12	Ring
18	Bowl	11	Point
17	Point	10	Thumb
13	Paint	4	Bowl, Paint, Print
12	Print, Thumb	3	Piano
5	Long	2	Cut, Nails, Prints
4	Cut	0	Illegible
3	Five, Toe	0	Blank
2	Bird, Move, Nails, Stick, Touch	110	Total
1	Illegible	24	Different Responses
1	Blank		
239	Total		
51	Different Responses		

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
FISH		FISH	
20	Water	10	Swim
19	Sea	9	Water
18	Swim	8	Bones
16	Fry	7	Fry
15	Catch, Eat	6	Eat, Food, Scales, Sea
11	Bones	4	Bone, Catch, Friday, Smell, Trout
10	Food, Hook	2	Ocean, Pole, Stink
7	Bone	0	Illegible
6	Lake	0	Blank
4	Bass, Clean, Friday, Ocean, Scale	110	Total
3	Boat, Cat, Smell, Trout	42	Different Responses
2	Cod, Fried, Good, Scales, Shark, Sport, Tail, Whale		
1	Illegible		
0	Blank		
239	Total		
71	Different Responses		
FOOL		FOOL	
64	Idiot	27	Idiot
31	Stupid	13	Stupid
12	Moron	10	Dumb
11	Nut	6	Jester, Trick
9	Dumb	5	Silly
8	Crazy	3	Moron, Nut
5	April, Trick	2	Clown, Crazy, Me, Wise
4	Man, Me	0	Illegible
3	Bible, Clown, Deceive, Genius, Play	0	Blank
2	Ape, Decieve, Dope, Imbecile, Jerk, Laugh, Poor, Proof, Simple	110	Total
3	Illegible	41	Different Responses
2	Blank		
239	Total		
72	Different Responses		

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
FOOT		FOOT	
66	Shoe	36	Shoe
42	Toe	16	Toe
21	Ball	9	Hand
15	Hand	5	Leg, Toes
7	Feet	4	Shoes
6	Smell, Toes, Walk	3	Feet
5	Shoes	2	Ache, Ball, Note, Sore, Web
4	Leg, Mouth	0	Illegible
3	Loose, Sock	0	Blank
2	Ankle, Heel, Inch, Itch, Powder, Race, Toenail, Yard	110	Total
1	Illegible	34	Different Responses
0	Blank		
240	Total		
56	Different Responses		
FRIEND		FRIEND	
48	Enemy	16	Enemy
35	Foe	10	Foe
18	Good	8	Girl
16	Pal	6	Close, Good
10	Buddy	5	Boy, Companion
8	Girl	4	Best, Pal
7	Boy, Companion	3	Buddy, Help, Nice
5	Person	2	Comfort, Neighbor, True
4	Close, Nice	1	Illegible
3	Help, Love, Neighbor, People	0	Blank
2	Companionship, Helpful, Kind, Like, Mike, Need, Ship, Ugly	110	Total
1	Illegible	45	Different Responses
1	Blank		
239	Total		
70	Different Responses		

TABLE C-1 Continued

Males (N=240)	Females (N=110)
FROST	FROST
82 Cold	42 Cold
42 Snow	24 Snow
26 Jack	16 Jack
22 Bite	6 Bite
12 Winter	4 Ice, White
11 Ice	3 Winter
6 Robert, White	2 Fall, Robert
2 Bit, Bitten, Dew, Freeze, Poet, Pumpkin, Window	0 Illegible
0 Illegible	0 Blank
0 Blank	110 Total
239 Total	17 Different Responses
33 Different Responses	
FRUIT	FRUIT
58 Apple	27 Apple
28 Eat	14 Eat
18 Orange	8 Juice
15 Juice	6 Salad
14 Tree	5 Sweet
8 Good	4 Fresh, Good, Orange, Pear
7 Food, Salad	3 Bowl, Cocktail, Jar, Peach
6 Peach, Pear	2 Cup, Food, Plate
5 Cake	1 Illegible
3 Banana, Cocktail, Fig, Grapes, Punch, Stand, Vegetable	0 Blank
2 Cherry, Cup, Dish, Health, Jar, Loom, Sweet, Vegetables	110 Total
0 Illegible	31 Different Responses
2 Blank	
240 Total	
55 Different Responses	
GARBAGE	GARBAGE
65 Can	25 Can
32 Trash	15 Trash
20 Smell	12 Pail
12 Collector	10 Smell
10 Truck	6 Dirty

TABLE C-1 Continued

Males (N=240)

GARBAGE (cont.)

9 Dirty, Pail
8 Disposal, Stink
7 Waste
6 Man, Smelly
5 Filth
4 Bag, Dump, Refuse
3 Junk, Mess
0 Illegible
1 Blank
239 Total
42 Different Responses

GENIUS

99 Smart
26 Brain
14 Einstein
7 Idiot
6 Dumb, I.Q., Me
5 IQ
4 Bright, Intelligence, Intelligent
3 Brilliant, Intellectual, Man
2 Dunce, Everyone, Glasses, Mathematics, Stupid, Think
0 Illegible
0 Blank
240 Total
58 Different Responses

GERM

42 Disease
26 Bacteria
19 Sick
17 Bad
9 Illness
8 Sickness
7 Kill, Warfare
6 Dirty, Infection, Small
4 Cold, Infect, Virus
3 Bacillus, Microscope, Mouth
2 Biology, Bug, Cell, Death,

Females (N=110)

GARBAGE (cont.)

4 Disposal
3 Food, Man
2 Collector, Dirt, Refuse, Smelly, Truck
0 Illegible
0 Blank
110 Total
35 Different Responses

GENIUS

43 Smart
15 Brain
7 Einstein
6 Brilliant
4 Idiot
3 Boy, I.Q., Intelligent
2 Brains, Bright, Intelligence, Man
0 Illegible
0 Blank
110 Total
30 Different Responses

GERM

24 Disease
17 Sick
14 Bacteria
8 Sickness
4 Bad, Cold, Dirty
3 Biology, Illness, Virus
2 Dirt, Hospital, Ill
0 Illegible
0 Blank
110 Total
33 Different Responses

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
GERM (cont.)		GERM (cont.)	
2	Dirt, Doctor, Harmful, Infectious, Insect, Killer, Medicine, Ugly, Wheat		
1	Illegible		
0	Blank		
239	Total		
68	Different Responses		
GIANT		GIANT	
60	Big	24	Big
19	Man	12	Green
17	Midget	9	Jack, Man
14	Green, Huge	8	Huge
12	Large	4	Beanstalk, Midget
10	Tall	3	Large
8	Jack	2	Dwarf, Goliath, Jolly, Pea, Tall, Tree, Tremendous
7	Goliath, Small	0	Illegible
4	Beanstalk, Little, Peas	0	Blank
3	Crab, Football, Monster	110	Total
2	David, Elephant, Jolly, Killer	38	Different Responses
1	Illegible		
1	Blank		
240	Total		
61	Different Responses		
GIN		GIN	
63	Drink	31	Drink
16	Rummy	18	Tonic
15	Liquor, Tonic	6	Cotton, Rummy
14	Whiskey	5	Liquor
13	Drunk	4	Rum
12	Bottle	3	Alcohol, Bottle, Drunk Mill, Vodka, Whiskey
9	Cotton	2	Beer, Cards
8	Rum, Vodka	0	Illegible
7	Alcohol	1	Blank
4	Bourbon, Mill	110	Total
3	Booze, Good	31	Different Responses
2	Beer, Fizz, Martini		
0	Illegible		
3	Blank		
240	Total		
55	Different Responses		

TABLE C-1 Continued

Males (N=240)	Females (N=110)
GIRL	GIRL
125 Boy	78 Boy
15 Pretty	7 Friend
11 Sex	5 Pretty
10 Love	3 Me
9 Friend	2 Female, Skirt, Woman
6 Nice	0 Illegible
3 Dress, Fun, Good, Woman, Wow	0 Blank
2 Beautiful, Beauty, Date, Female, Fine, Scout, Sweet	110 Total
0 Illegible	19 Different Responses
1 Blank	
239 Total	
51 Different Responses	
GLOVE	GLOVE
135 Hand	65 Hand
17 Warm	5 Kid, Leather, White
11 Wear	3 Tight
6 Compartment	2 Compartment, Finger, Fit, Soft, Warm
5 Finger, White	1 Illegible
4 Cold, Fingers, Kid, Leather	0 Blank
3 Baseball, Boxing, Cover, Hat, Tight, Winter	110 Total
2 Fit, Mitten, Warmth	26 Different Responses
0 Illegible	
0 Blank	
240 Total	
40 Different Response	
GOD	GOD
15 Jesus	13 Love
14 Heaven, Man	12 Religion
13 Church, Great, Religion	9 Heaven
9 Christ	8 Good
8 Lord, Supreme	6 Man
7 Good, Love	5 Almighty, Church
6 Almighty	4 Christ
4 Bible, Country, Creator,Sky	3 Faith, Infinite, Jesus, Sky
3 Deity, Faith, Peace, Universe	2 Big, Country, Father,
2 Atheist, Infinite, Infinity,	

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
GOD (cont.)		GOD (cont.)	
2	Omnipotent, One, Prayer, White, Worship	2	Great, Powerful, Worship
2	Illegible	0	Illegible
5	Blank	0	Blank
239	Total	110	Total
89	Different Responses	42	Different Responses
GOLF		GOLF	
57	Ball	23	Ball
38	Club	15	Club
19	Game	10	Game
15	Play, Sport	8	Tee
8	Tennis	6	Sport
7	Course	5	Play
6	Fun, Tee	4	Course
5	Clubs, Palmer	3	Clubs, Father, Hit
3	Par	2	Cart, Fun, Player, Tennis, Tournament, Walk, Widow
2	Arnold Palmer, Bag, Birdie, Cart, Fore, Good, Grass, High, Hit, Lazy, Leisure, Score, Swing	0	Illegible
0	Illegible	0	Blank
1	Blank	110	Total
240	Total	33	Different Responses
54	Different Responses		
GOOSE		GOOSE	
33	Duck	15	Feathers
26	Gander	14	Egg
25	Feathers	13	Duck, Feather
22	Feather	5	Gander
17	Bird	4	Golden
16	Geese	3	Eggs, Farm, Hen, Liver, White
10	Egg	2	Animal, Bird, Fat, Geese, Honk, Neck, Quill, Yellow
5	Chicken, Cooked, Neck, White	0	Illegible
4	Eggs	0	Blank
3	Eat, Fly, Food, Hen, Liver, Loose, Mother, Pimples	110	Total
2	Animal, Birds, Dinner, Ducks, Fat, Flesh, Foot, Fowl, Hunt, Quill	34	Different Responses

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
GOOSE (cont.)		GOOSE (cont.)	
1	Illegible		
1	Blank		
240	Total		
51	Different Responses		
GOVERNOR		GOVERNOR	
40	State	33	State
20	Mayor	7	Leader
17	Clement	5	Mayor, President
15	Wallace	4	Head, Politics
12	President	3	Man, Mansion
7	Leader, Man, Politics	2	Faubus, Government, Law, Official, Politician, Ruler, Wallace
5	Bryant, Senator	0	Illegible
4	Head, Official, Ruler	0	Blank
3	Capitol, Chief, Crook, Faubus, General, Mansion	110	Total
2	Boss, Crooked, Election, Executive, Important, Politician, Rhodes, Rockefeller, Rule, Scranton	46	Different Responses
0	Illegible		
2	Blank		
240	Total		
82	Different Responses		
GRAPE		GRAPE	
49	Purple	25	Purple
22	Juice	19	Juice
21	Wine	13	Wine
20	Fruit, Vine	9	Green
14	Eat	8	Fruit
9	Seed	4	Eat, Seed
7	Green	3	Vine
6	Drink	2	Drink, Orange, Sour
5	Food, Good, Orange	0	Illegible
4	Nuts, Seeds, Sour, Sweet, Wrath	0	Blank
3	Round	110	Total
2	Cherry, Elephant, Seedless	30	Different Responses
0	Illegible		
0	Blank		
239	Total		
48	Different Responses		

TABLE C-1 Continued

Males (N=240)	Females (N=110)
GUN	GUN
65 Bullet	27 Bullet
41 Shoot	18 Shoot
25 Rifle	17 Shot
17 Shot	8 Powder
11 Pistol	7 Rifle
9 Powder	6 Bang
6 Bang	2 Fire, Hunt, Pistol, Smoke, Trigger
5 Fire, Shell	0 Illegible
4 Bullets, Death, Smoke	0 Blank
3 Man, Rack	110 Total
2 Ammunition, Barrel, Chew, Holster, Hunt, Knife, Quail	28 Different Responses
0 Illegible	
1 Blank	
240 Total	
44 Different Responses	
GUN	GUN
55 Shoot	28 Shoot
19 Rifle	12 Bullet
17 Bullet	9 Powder, Shot
16 Powder, Shot	6 Kill
11 Hunt, Pistol	5 Fire, Pistol
10 Fire	3 Bang, Rifle, Smoke
9 Kill	2 Barrel, Cold, Hunt, Rack
7 Bang, Trigger	1 Illegible
5 Shell	0 Blank
4 Barrel, Hunting	110 Total
3 Loaded	32 Different Responses
2 Bullets, Death, Holster, Knife, Rack, Smoke, War	
0 Illegible	
1 Blank	
239 Total	
52 Different Responses	
HAMMER	HAMMER
145 Nail	69 Nail
17 Hit	7 Hit
8 Nails	5 Nails
6 Head	4 Pound
5 Throw	3 Knock

TABLE C-1 *Continued*

Males (N=240)		Females (N=110)	
HAMMER (cont.)		HAMMER (cont.)	
4	Beat, Claw, Saw	2	Bang, Head, Saw, Tools
3	Pound, Sickle, Thumb	0	Illegible
2	Anvil, Bang, Hard, Thor	0	Blank
4	Illegible	110	Total
0	Blank	23	Different Responses
240	Total		
41	Different Responses		
HAND		HAND	
50	Finger	21	Finger
36	Foot	13	Foot, Ring
25	Arm	10	Glove
22	Fingers	8	Fingers
11	Shake	6	Arm, Shake
10	Glove	4	Nail
6	Ball	3	Soft
5	Ring	2	Thumb, Touch
4	Feet, Fist	0	Illegible
3	Grasp	0	Blank
2	Bag, Elbow, Eye, Girl, Heart, Hold, Saw, Watch, Wrist, Write	110	Total
0	Illegible	33	Different Responses
0	Blank		
240	Total		
65	Different Responses		
HARBOR		HARBOR	
54	Boat	34	Boat
36	Bay	16	Bay
33	Ship	15	Ship
22	Water	10	Water
12	Ships	6	Lights, Ships
11	Boats	5	Boats
10	Port	3	New York, Sea
9	New York	2	Port
8	Lights	0	Illegible
6	Sea	0	Blank
4	Light, Pearl	110	Total
2	City, Dock, Hide	20	Different Responses
1	Illegible		

TABLE C-1 Continued

Males (N=240)	Females (N=110)
HARBOR (cont.)	HARBOR (cont.)
0 Blank	
239 Total	
38 Different Responses	
HAT	HAT
80 Coat	38 Coat
45 Head	19 Head
13 Wear	8 Pin
10 Rack	5 Wear
8 Band, Rain	4 Gloves
7 Cap, Pin	3 Cap
4 Man	2 Man, Rack, Stand, Veil, Winter
3 Brim, Top	0 Illegible
2 Clothes, Derby, Hair, High, Off, Stop, Tie	0 Blank
1 Illegible	110 Total
4 Blank	34 Different Responses
239 Total	
50 Different Responses	
HATCHET	HATCHET
32 Axe	13 Chop
30 Ax	12 Ax, Axe
23 Cut	7 Knife
20 Chop	6 Kill, Tree
16 Knife	5 Cut, Sharp, Wood
15 Tree	4 Indian
14 Sharp	3 Hammer, Murder
12 Wood	2 Fire, George, Saw
11 Kill	0 Illegible
5 Blade, Bury, Hammer, Indian, Man	0 Blank
4 Blood	110 Total
3 Death, Saw	38 Different Responses
2 Dull, Face, Weapon, Woods, Work	
0 Illegible	
0 Blank	
239 Total	
45 Different Responses	

TABLE C-1 Continued

Males (N=240)

HEAD

26	Hair
23	Shoulders
11	Foot, Tail
10	Body, Hat
8	Bathroom, Eye, Eyes, Face, Neck
7	Feet, Leader, Man, Shoulder
5	Top
4	Chief, Rear, Toe
3	Brain, John, Nose
2	Beer, Hand, Judge, Waiter
1	Illegible
0	Blank
240	Total
72	Different Responses

HILL

62	Mountain
31	Climb
22	High
19	Top
11	Dale, Valley
8	Grass
7	Steep
6	Rise
5	Mound
4	Green, House, Tree
3	Country
2	Big, Crest, Height, Lake, Up
0	Illegible
0	Blank
239	Total
51	Different Responses

HONEY

83	Sweet
77	Bee
19	Bees
13	Dew
8	Comb
4	Sugar
3	Bear, Girl, Good
2	Bun, Eat, Thick

Females (N=110)

HEAD

25	Hair
8	Shoulders
6	Face, Hat
5	Neck
4	Leader, Top
3	Body, Eyes, Foot, President, Room, Shoulder, Tail
2	Chief, Heart, Resident, Toe
0	Illegible
0	Blank
110	Total
41	Different Responses

HILL

33	Mountain
17	Climb
11	High
6	Grass
4	Dale
3	Valley
2	Green, Rolling, Slope, Steep, Top, Trees, Up
0	Illegible
0	Blank
110	Total
35	Different Responses

HONEY

44	Sweet
22	Bee
8	Bees
4	Sugar
3	Comb
2	Bread, Toast

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
HONEY (cont.)		**HONEY (cont.)**	
1	Illegible	0	Illegible
0	Blank	0	Blank
239	Total	110	Total
31	Different Responses	21	Different Responses
HOUR		**HOUR**	
92	Minute	40	Time
58	Time	36	Minute
32	Clock	11	Clock
20	Glass	6	Day, Glass
12	Day	2	Hand, Second
7	Watch	0	Illegible
4	Second	0	Blank
3	Long	110	Total
2	Hand, Late	14	Different Responses
0	Illegible		
0	Blank		
239	Total		
17	Different Responses		
HUT		**HUT**	
64	House	20	Shack
35	Shack	17	House
15	Hovel	7	Small
9	Small	6	Grass, Hovel
7	Grass, Home	5	Home, Straw
6	Live, Native	4	Thatched
5	Straw	3	Hermit, Thatch
4	Indian, Thatched	2	Little, Live, Poor
3	Cottage, Island, Poor, Primitive	0	Illegible
2	Brown, Cabin, Cave, Hermit, Jungle, Roof, Room, Thatch, Wigwam	1	Blank
0	Illegible	110	Total
2	Blank	40	Different Responses
240	Total		
70	Different Responses		

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
INK		INK	
160	Pen	73	Pen
19	Black	13	Black
12	Bottle	4	Blue, Bottle
10	Well	3	Blot, Well
6	Blue	2	Messy, Spot
4	Blot, Pin, Write	0	Illegible
2	Blotter, Dark, Ink, Paper, Spill, Spot, Stain	0	Blank
0	Illegible	110	Total
0	Blank	14	Different Responses
240	Total		
22	Different Response		
INSECT		INSECT	
47	Bug	32	Bug
40	Bite	13	Bite
30	Fly	11	Fly
16	Bee	6	Buzz, Mosquito
8	Ant, Small	5	Sting
7	Repellent	4	Bee
6	Mosquito, Pest, Sting	3	Ant, Crawl, Spider
5	Repellant, Spray	2	Bit, Little, Pest
3	Swat, Wings	0	Illegible
2	Bird, Bugg, Crawling, Legs, Little, Moth, Spider	0	Blank
1	Illegible	110	Total
1	Blank	31	Different Responses
239	Total		
54	Different Responses		
INVALID		INVALID	
48	Sick	41	Sick
29	Cripple	6	Cripple, Helpless
16	Old	5	Bed, Wheel Chair
14	Helpless	4	Hospital, Ill, Wheelchair
13	Wheelchair	3	Old
8	Crippled	2	Crippled, Help, Hurt
7	Hurt	0	Illegible
6	Wheel Chair	0	Blank
5	Bed	110	Total
4	Child , Sorrow	38	Different Responses

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
INVALID (cont.)		INVALID (cont.)	
3	Bedridden, Disabled, Hospital, Lame, Person, Weak		
2	Athlete, Baby, Bad, Chair, Crutches, False, Grandmother, Pity, Poor, Shut-in, Sickness, Unfortunate, Valid		
1	Illegible		
0	Blank		
239	Total		
70	Different Responses		
JAIL		JAIL	
40	Bars	29	Bars
24	House	14	Prison
22	Prison	8	Bird, Crime
18	Bird	6	Cell, House
13	Prisoner	5	Prisoner
11	Cell	4	Criminal
9	Police	3	Bar
8	Bad	2	Bad, Key, Punish
6	Break	0	Illegible
5	Criminal	0	Blank
4	Bar, Convict, Crime	110	Total
3	Bail, Bait, Law, Sentence	33	Different Responses
2	Crook, Drunk, Key, Punish		
1	Illegible		
3	Blank		
240	Total		
69	Different Responses		
JEWEL		JEWEL	
72	Diamond	28	Diamond
48	Ring	14	Ring
14	Ruby	10	Ruby
11	Money	8	Gem
10	Gem	5	Shine
8	Thief	4	Emerald
6	Value	3	Green, Sparkle
4	Sparkle, Stone, Watch	2	Bright, Necklace, Stone
3	Crown, Emerald, Girl, Glitter, Necklace, Precious, Pretty	0	Illegible
		0	Blank

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
JEWEL (cont.)		**JEWEL (cont.)**	
2	Beauty, Brilliant, Expensive, Jewelry, Opal, Pearl, Valuable	110	Total
1	Illegible	40	Different Responses
0	Blank		
240	Total		
47	Different Responses		
JUSTICE		**JUSTICE**	
42	Court, Law	25	Peace
33	Peace	16	Court
18	Judge	10	Law
14	Fair	8	Right
8	Right	6	Judge
6	Department	5	Fair, Liberty
5	Liberty	3	Freedom, Truth
4	Good	2	Black, Department, Good, Honor, Mercy, Scales
3	Freedom, Honor, Injustice, Supreme Court, Truth, Warren	0	Illegible
2	Desirable, Equality, Hall, Jury, Mercy, of the Peace, Police	0	Blank
1	Illegible	110	Total
0	Blank	32	Different Responses
240	Total		
57	Different Responses		
KID		**KID**	
61	Goat	29	Goat
44	Child	19	Child
31	Boy	13	Gloves
18	Brother	12	Brother
8	Billy	8	Glove
6	Gloves	5	Boy
4	Baby, Glove	3	Baby, Billy
3	Brat, Dog, Joke, Lamb, Little, Small	2	Cowboy, White
2	Children, Girl, Man,Son Trouble, White, Young	0	Illegible
0	Illegible	0	Blank
1	Blank	110	Total
240	Total	24	Different Responses
52	Different Responses		

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
KING		KING	
163	Queen	86	Queen
10	Kong	4	Crown
8	Crown	3	Ruler
5	Royal	2	Lear, Siam
4	Prince	0	Illegible
3	Pin	0	Blank
2	Country, Henry, Lear, Monarch, Rex, Rule, Ruler, Tyrant	110	Total
0	Illegible	18	Different Responses
1	Blank		
239	Total		
44	Different Responses		
KITCHEN		KITCHEN	
78	Food	29	Food
27	Sink	19	Cook
24	Cook	17	Sink
21	Stove	5	Cooking, Stove
9	Knife	4	Clean
7	Eat	3	Eat, Yellow
6	Table	2	Maid, Pans, Utensil, Work
4	Floor, Utensil	0	Illegible
3	Door, House, Mother	0	Blank
2	Bathroom, Cabinet, Cabnet, Clean, Dinner, Dishes, Living room, Utensils	110	Total
1	Illegible	29	Different Responses
0	Blank		
239	Total		
53	Different Responses		
KNIFE		KNIFE	
59	Cut	28	Cut
45	Blade	26	Ford
38	Sharp	12	Blade
23	Fork	10	Sharp
9	Gun	7	Spoon
7	Bowie	3	Blood, Kill
3	Fight, Kill, Pen, Switchblade	2	Gun, Mack
2	Ax, Blood, Death, Dull, Edge,	0	Illegible

TABLE C-1 *Continued*

Males (N=240)		Females (N=110)	
KNIFE (cont.)		KNIFE (cont.)	
2	Shiv, Spoon, Stab	0	Blank
0	Illegible	110	Total
0	Blank	26	Different Responses
240	Total		
49	Different Responses		
LABEL		LABEL	
25	Name	25	Tag
21	Can	18	Name
17	Tag	11	Dress
11	Bottle	6	Clothes
9	Black	4	Jar
8	Clothes, Read	2	Bottle, Nametag, Sew, Sign, Suit, White
7	Jar, Shirt	1	Illegible
5	Mark, Sign	0	Blank
4	Coat, Identity, Lapel, Write	110	Total
3	Brand, Contents, Food, Maker, Paper, Thread	44	Different Responses
2	Beer, Glue, Package, Stick, Sticker, Store, Type, Whiskey		
5	Illegible		
3	Blank		
239	Total		
87	Different Responses		
LAKE		LAKE	
74	Water	23	Water
18	River	14	Boat
17	Boat, Fish	11	Blue
11	Blue	10	Swim
10	Pond, Swim	7	River
8	Stream	6	Ski
5	Shore	4	Fish
4	Ski, Skiing	3	Pond
3	Erie, Fishing	2	Big, Clear, Home, Michigan, Sail, Skiing
2	Calm, Dam, Eirie, Large, Old Hickory, Placid, Sea	0	Illegible
1	Illegible	0	Blank
0	Blank	110	Total
240	Total	34	Different Responses
61	Different Responses		

TABLE C-1 Continued

Males (N=240)

LAMP

120	Light
70	Shade
10	Post
6	Bulb
5	Table
3	Desk
2	Blub, Cord, Lighter, Oil, Room
0	Illegible
1	Blank
239	Total
25	Different Responses

LEAF

169	Tree
18	Green
11	Fall
5	Rake
2	Autumn, Brown, Grass, Loaf, Maple, Twig, Vein, Veins, Yellow
0	Illegible
0	Blank
239	Total
31	Different Responses

LETTUCE

40	Green
29	Tomato
27	Salad
25	Cabbage
13	Eat
11	Food, Head, Tomatoe
8	Rabbit
7	Crisp, Vegetable
4	Money, Sandwich, Tomatoes
3	Garden
2	Celery, Leaf, Salade, Salid, Tomatto
1	Illegible
0	Blank
240	Total
45	Different Responses

Females (N=110)

LAMP

67	Light
18	Shade
6	Post
5	Table
2	Aladdin, Desk
0	Illegible
0	Blank
110	Total
16	Different Responses

LEAF

59	Tree
14	Green
11	Fall
2	Autumn, Gold, Oak, Spring, Stem
0	Illegible
0	Blank
110	Total
24	Different Responses

LETTUCE

25	Salad
22	Green
13	Tomato
5	Cabbage, Crisp, Tomatoe
4	Leaf
3	Rabbit, Sandwich
2	Cool, Food, Good, Head
0	Illegible
0	Blank
110	Total
30	Different Responses

TABLE C-1 Continued

Males (N=240)	Females (N=110)
LIBRARY	LIBRARY
115 Books	49 Books
99 Book	35 Book
8 Study	9 Study
3 Quiet, Read	7 Quiet
0 Illegible	2 Reading
0 Blank	0 Illegible
240 Total	0 Blank
17 Different Responses	110 Total
	13 Different Responses
LION	LION
62 Tiger	22 Roar
16 Roar	21 Tiger
15 Cat	7 Mane
13 King	5 Beast, Jungle
12 Mane	3 Animal, Cat, Cub, Tail
10 Animal	2 Courage, Coward, Fierce, Growl, Mean, Shaggy, Yellow
8 Brave	0 Illegible
6 Jungle	0 Blank
5 Tail, Tamer	110 Total
3 Africa, Beast, Cage, Courage, Fierce, Hair, Hunt, Leopard, Zoo	40 Different Responses
2 Big, Car, Cub, Danger, Den, Ferocious, Growl, Heart, Lamb, Main, Mean, Sea	
1 Illegible	
2 Blank	
240 Total	
65 Different Responses	
LIP	LIP
74 Kiss	25 Kiss
47 Mouth	18 Stick
13 Stick	17 Mouth
11 Talk	16 Lipstick
7 Girl, Lipstick, Teeth	8 Red
6 Nose, Tongue	4 Face
5 Red, Service	3 Cheek
3 Big, Read	2 Service, Teeth, Tongue

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
LIP (cont.)		LIP (cont.)	
2	Button, Chapped, Cut, Leo, Louisville, Sass, Smart Aleck	0	Illegible
0	Illegible	0	Blank
0	Blank	110	Total
239	Total	24	Different Responses
51	Different Responses		
LIZARD		LIZARD	
50	Snake	14	Snake
39	Reptile	12	Green
17	Green	6	Crawl, Shoes, Slimy
11	Crawl, Slimy	5	Reptile
10	Animal	4	Bag, Snail
7	Tail	3	Alligator, Animal
4	Fast, Iguana, Scaly	2	Frog, Long, Newt, Purse, Shoe, Skin, Skink, Small, Ugly
3	Salamander, Skin, Slick	0	Illegible
2	Alligator, Bag, Chamelion, Desert, Frog, Gila Monster, Insect, Quick, Rock, Scales, Slimey, Tongue, Ugh, Ugly	0	Blank
0	Illegible	110	Total
2	Blank	48	Different Responses
240	Total		
71	Different Responses		
LOAFER		LOAFER	
68	Lazy	55	Shoe
67	Shoe	20	Lazy
11	Bum	3	Bum, Shoes, Sock
5	Sleep, Weejun	2	Penny, Wear, Weejuns
4	Me, Worker	0	Illegible
3	Fool	0	Blank
2	Couch, Louse, Man, No good, Person, Shoes, Stupid, Tired	110	Total
1	Illegible	28	Different Responses
0	Blank		
239	Total		
71	Different Responses		

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
LOBSTER		LOBSTER	
41	Red	29	Red
40	Fish	16	Fish
31	Crab	11	Crab
21	Food	6	Eat, Tail
17	Tail	5	Maine
14	Claw	4	Good
10	Maine	3	Delicious, Food
9	Sea	2	Awful, Water
8	Eat, Good	0	Illegible
5	Ocean	0	Blank
3	Claws, Shell	110	Total
2	Boiled, Butter, Pink, Seafood	34	Different Responses
0	Illegible		
1	Blank		
240	Total		
38	Different Responses		
LUNATIC		LUNATIC	
73	Crazy	34	Crazy
33	Nut	16	Insane
21	Insane	13	Nut
14	Maniac	12	Asylum
10	Idiot	7	Mad
8	Mad, Moon	4	Idiot, Maniac
7	Madman	2	Moon, Nuts
6	Asylum	1	Illegible
3	Fanatic, People, Sick,	0	Blank
2	Man, Me, Sanitorium, Stupid, Bad	110	Total
0	Illegible	24	Different Responses
1	Blank		
240	Total		
57	Different Responses		
MAID		MAID	
27	Butler	15	Butler
21	Servant	9	Clean, Servant, Work
20	Clean	5	Help
13	Negro, Service, Work	4	Girl, House
10	Girl	3	Ironing, Man
8	Old	2	Apron, Black, Colored, Service, Waiter, Waitress,

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
MAID (cont.)		MAID (cont.)	
7	Cleaning, Woman	2	Wash, Woman
6	Colored	0	Illegible
5	Help	0	Blank
4	Helper, Virgin	110	Total
3	Apron, Honor, House, Maiden, Milk, Rich, Room	50	Different Responses
2	Cleaner, Home, Man, Master, Nurse, Uniform, Wealthy, Wedding		
0	Illegible		
0	Blank		
239	Total		
73	Different Responses		
MAN		MAN	
138	Woman	66	Woman
18	Boy	6	Boy
5	Strong	4	Strong, Tall
4	Person, Women	3	Big
3	Animal, Big, Human, Man	2	Father, Masculine, Work
2	Ape, Dog, Hat, History, Hole, Life, Male, Me, Old, Time	0	Illegible
1	Illegible	0	Blank
2	Blank	110	Total
240	Total	29	Different Responses
55	Different Responses		
MEADOW		MEADOW	
50	Field	22	Green
37	Grass	20	Grass
31	Green	10	Lark
24	Lark	9	Field
10	Brook	7	Flowers
9	Flowers	3	Flower, Stream
4	Grassy	2	Brook, Lea, Peaceful, Pretty
3	Cows, Land, Pasture, Valley	0	Illegible
2	Calm, Cool, Daisies, Fair, Flat, Glen, Gold, Golden, Lake, Wheat, Yellow	2	Blank
0	Illegible	110	Total
4	Blank	37	Different Responses
240	Total		
59	Different Responses		

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
MICROBE		**MICROBE**	
66	Small	23	Small
43	Germ	14	Biology, Germ
20	Biology	9	Science
17	Microscope	8	Microscope
12	Science	5	Little, Tiny
10	Bacteria	4	Chemistry, Disease, Microscopic
8	Hunter	3	Minute
6	Tiny	2	Bacteria
5	Bug	0	Illegible
4	Disease, Little	0	Blank
3	Atom, Cell, Nothing	110	Total
2	Chemistry, Molecule, Virus	27	Different Responses
0	Illegible		
0	Blank		
240	Total		
47	Different Responses		
MIDGET		**MIDGET**	
63	Small	31	Giant
56	Giant	21	Small
27	Man	13	Short
24	Short	9	Dwarf, Little
8	Circus	4	Circus, Man
7	Little	2	Fair, Girl, Pygmy
6	Dwarf, Racer	0	Illegible
4	Car	0	Blank
2	Big, Boy, Gnome, Tall, Wrestler	110	Total
0	Illegible	23	Different Responses
0	Blank		
239	Total		
44	Different Responses		
MILK		**MILK**	
56	Cow	19	Drink, White
38	White	10	Cow
35	Drink	9	Bottle
12	Bottle	6	Glass
11	Good	5	Skim
10	Butter	4	Honey
8	Glass	3	Water
7	Cream	2	Baby, Cold, Cookies, Healthy, Pasteur, Tea
5	Honey, Water		
3	Calcium, Cheese, Food, Sour		

TABLE C-1 Continued

Males (N=240)	Females (N=110)
MILK (cont.)	MILK (cont.)
2 Health, Sweet	0 Illegible
2 Illegible	0 Blank
0 Blank	110 Total
240 Total	37 Different Responses
51 Different Responses	
MINISTER	MINISTER
67 Preacher	27 Church
43 Church	15 Preach
22 Preach	10 Preacher
13 God	6 God, Pastor
11 Priest	5 Priest
7 Religion	3 Black, Congregation, Help, Man, Religion, Sermon
5 Rabbi	
4 Friend, Good, Pastor, Sermon	2 Friend
3 Collar, Religious	0 Illegible
2 Faith, Father, Helper, Pray, Robes	0 Blank
1 Illegible	110 Total
0 Blank	34 Different Responses
239 Total	
56 Different Responses	
MINNOW	MINNOW
142 Fish	65 Fish
23 Bait	7 Fishing, Small
14 Small	3 Bait, Little, Stream
13 Fishing	2 Bucket, Lake, Swim
5 Trout	0 Illegible
4 Pond, Stream	0 Blank
3 Bucket, Swim	110 Total
2 Bass	25 Different Responses
1 Illegible	
1 Blank	
240 Total	
35 Different Responses	
MINUTE	MINUTE
79 Second	29 Second
49 Hour	26 Time
40 Time	23 Hour

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
MINUTE (cont.)		MINUTE (cont.)	
22	Small	8	Clock
8	Man	4	Hand
6	Short	3	Short
4	Clock	2	Small, Steak, Watch
3	Fast, Hand, Seconds	0	Illegible
2	Infinitesimal, Rice, Sec., Tiny, Watch	0	Blank
0	Illegible	110	Total
1	Blank	20	Different Responses
240	Total		
27	Different Responses		
MOB		MOB	
59	Riot	29	Crowd
24	Crowd	20	Riot
23	Violence	8	Scene
20	People	7	Violence
13	Gang	6	People
11	Rule	5	Gang
8	Group	4	Group
6	Angry, Scene	3	Rule
4	Action, Gangster, Lynch	2	Action, Angry, City, Fight, Negro
3	Fight, Hang, Unruly	0	Illegible
2	Al Capone, Bang, Hanging, Hate, Kill, Men, Noise, Roit	0	Blank
1	Illegible	110	Total
0	Blank	31	Different Responses
240	Total		
55	Different Responses		
MONEY		MONEY	
35	Bank	16	Spend
28	Spend	15	Green
22	Green	14	Bank
19	Rich	5	Buy, Rich
8	Buy	4	Wallet
7	Cash, Change, Fun	3	Change, Good
6	Good	2	Bills, Cash, Dime, Dollars, Gold
5	Banker	0	Illegible
4	Coins, Girls	0	Blank
3	Dollar, Dollars, Save, Security	110	Total
		48	Different Responses

TABLE C-1 *Continued*

Males (N=240)	Females (N=110)
MONEY (cont.)	MONEY (cont.)
2 Bags, Bin, Broke, Check, Clothes, Coin, Gold, More, Need, Needed, Nice, Paper, Penny, Tree	
0 Illegible	
2 Blank	
240 Total	
76 Different Responses	
MONKEY	MONKEY
40 Ape	18 Ape
21 Tail	16 Tail
18 Animal	6 Animal, Funny, Tree
15 Tree	5 Banana, Zoo
12 Zoo	3 Bananas, Cage, Climb, Cute, Dance
8 Jungle	2 Brown, Jungle, Organ grinder, Trees
6 Climb, Dance, Funny	1 Illegible
5 Cage, Wrench	0 Blank
4 Hairy	110 Total
3 Man, Organ, Trees	40 Different Responses
2 Bannana, Do, Donkey, Evolution, Fun, Hair, Hang, Paw, Rope, Scratch, Shine, Shines, Silly, Stupid, Suit, Swing, Time	
1 Illegible	
0 Blank	
239 Total	
81 Different Responses	
MOON	MOON
41 Sun	24 Sun
20 Night	16 Night
19 Cheese	7 Star
8 Stars	6 Full, Stars
7 Man	5 Man
6 Crater, Yellow	4 Cheese
5 Earth, Shot, Star	3 Romance, Sky
4 Green, High, Maid, Rocket, Romance, Shine, Space	2 Blue, Craters, Half, Rocket, Romantic, Round, White, Yellow
3 Beam, Bright, Craters, Far, Full, Love, Lunar, Sky, White	

TABLE C-1 Continued

Males (N=240)	Females (N=110)
MOON (cont.)	MOON (cont.)
2 Astronaut, Big, Blue, Coat, Mars, Rockets, Romantic, Satellite, Stone	0 Illegible
1 Illegible	0 Blank
4 Blank	110 Total
239 Total	37 Different Responses
74 Different Responses	
MORNING	MORNING
32 Night	24 Sun
30 Sun	17 Night
29 Evening	8 Glory
18 Glory	7 Dew
13 Dawn, Day	6 Evening
10 Afternoon	5 Dawn, Sunrise
9 Early	4 Sunshine
7 Dew	3 Bright, Light
6 Noon, Star	2 Afternoon, Day, Early, Nice
5 Dove	0 Illegible
4 Sunrise	0 Blank
3 Blue, Bright, Cool, Fresh, Good	110 Total
2 Awake, Bed, Breakfast, Clear, Cold, Due, Light, Sleep, Sleepy	34 Different Responses
1 Illegible	
0 Blank	
240 Total	
51 Different Responses	
MORON	MORON
84 Idiot	32 Idiot
49 Stupid	29 Stupid
24 Dumb	12 Dumb
9 Genius, Imbecile	4 Dunce
7 Dope	3 Imbecile, Nut
5 Nut	2 Joke, Smart
4 Fool	0 Illegible
3 Ape, Jerk	0 Blank
2 Color, Ignorant, Small, Boy	110 Total
1 Illegible	31 Different Responses
2 Blank	
239 Total	
45 Different Responses	

TABLE C-1 Continued

Males (N=240)	Females (N=110)
MOTHER	MOTHER
135 Father	48 Father
32 Love	7 Daddy
7 Dad	6 Dad, Home, Kind, Love
6 Home	3 Child
5 Good	2 Nice, Woman
4 Nice, Woman	0 Illegible
3 Daddy, Mom	0 Blank
2 Dear, Friend, Old, Son	110 Total
2 Illegible	33 Different Responses
0 Blank	
239 Total	
43 Different Responses	
MOUNTAIN	MOUNTAIN
41 High	19 Hill
36 Hill	18 High
21 Climb	8 Climb
9 Snow, Stream	7 Stream, Tall
8 Big, Top	6 Top
7 Goat	4 Climber, Peak
6 Peak	3 Goat
4 Dew, Everest, Home, Large, Mole hill, Range	2 Beautiful, Lion, Rocky
3 Height, Tall, Trees	0 Illegible
2 Beautiful, Beauty, Climber, Forest, Huge, Lake, Lion, Man, Scenery, Sky, Valley	1 Blank
0 Illegible	110 Total
3 Blank	39 Different Responses
240 Total	
66 Different Responses	
MOUSE	MOUSE
64 Rat	19 Cat
40 Cat	18 Rat
31 Trap	11 Trap
20 Mice	7 Cheese, Gray
12 Gray	6 Small
8 Hole, Mickey	4 Scream
7 Small	3 Mice, Squeak
4 Grey	2 Animal, Dirty, Hole, Little, Mickey, Scare,
3 Animal, Cheese, Fur, House, Little	

TABLE C-1 Continued

Males (N=240)	Females (N=110)
MOUSE (cont.)	MOUSE (cont.)
2 Pest, Run, Tail	2 Tail, Woman
0 Illegible	0 Illegible
1 Blank	0 Blank
240 Total	110 Total
41 Different Responses	33 Different Responses
NECKLACE	NECKLACE
40 Pearl	20 Pearl
25 Diamond	17 Bracelet
21 Neck	13 Pearls
20 Jewelry	10 Jewelry
17 Pearls	8 Diamond
16 Bracelet	6 Neck, Pretty
13 Girl	5 Wear
8 Pretty	3 Beads, Earrings
6 Diamonds, Jewels	2 Gold, Jewel, Jewels
5 Beads, Wear	0 Illegible
4 Expensive, Jewel, Money	0 Blank
3 Gold, Woman	110 Total
2 Break, Charm, Earring, Earrings, Valuable	26 Different Responses
0 Illegible	
0 Blank	
240 Total	
52 Different Responses	
NEEDLE	NEEDLE
91 Thread	52 Thread
37 Sew	29 Sew
31 Pin	9 Pin
15 Sharp	7 Eye
11 Eye	6 Sharp
7 Point	2 Sewing
6 Prick, Stick	0 Illegible
4 Haystack, Pins, Sewing	0 Blank
2 Fish	110 Total
1 Illegible	11 Different Responses
4 Blank	
239 Total	
28 Different Responses	

TABLE C-1 Continued

Males (N=240)	Females (N=110)
NIGHT	NIGHT
90 Day	30 Day
34 Dark	17 Dark
21 Sleep	13 Sleep
11 Fun	8 Stars
7 Black	5 Moon
5 Darkness, Life, Party, Stars	4 Black
4 Moon, Sex	3 Dance
3 Late, Time	2 Darkness, Date, Out, Quiet
2 Cool, Dance, Evening, Love, Morning, Shirt, Watch	0 Illegible
1 Illegible	0 Blank
1 Blank	110 Total
240 Total	33 Different Responses
47 Different Responses	
OCEAN	OCEAN
54 Sea	26 Sea
33 Water	12 Blue
14 Blue	8 Salt
11 Swim	7 Water, Waves
8 Salt, Spray	5 Fish, Wave
7 Beach, Deep	4 Atlantic
6 Front, Waves	3 Beach, Big, Deep, Swim
5 Fish, Wave	2 Sand, Spray
4 Atlantic, Boat, Side	0 Illegible
3 Big, Pacific, Saltwater, Sand, Ship	0 Blank
2 Distant, Fun, Liner, Roar, Sail, Shore, Surf, Surfing, Wide	110 Total
1 Illegible	34 Different Responses
1 Blank	
239 Total	
57 Different Responses	
OIL	
22 Slick	
19 Gas	
17 Well	
16 Car	
12 Black, Paint	

TABLE C-1 Continued

Males (N=240)

OIL (cont.)

11 Texas
10 Money
9 Grease
7 Painting
6 Slippery
5 Lamp
4 Greasy, Water
3 Can, Derrick, Drum, Field, Gasoline, Motor, Rich
2 Burn, Change, Lubricant, Lubricate, Paints, Sticky, Thick, Wells, Work
0 Illegible
1 Blank
240 Total
76 Different Responses

ORANGE

41 Fruit
29 Apple
19 Color, Tree
11 Red
9 Eat, Juice
7 Lemon
6 Pear, Peel
5 Florida, Yellow
4 Orange, Peach, Sweet, Tangerine
3 Blossom, Good, Green, Grove, Round
2 Blue, Citrus, Drink, Food, Grape, Grapefruit, Peal, Pineapple
0 Illegible
0 Blank
239 Total
55 Different Responses

ORGAN

86 Music
48 Piano
23 Church
21 Play

Females (N=110)

OIL (cont.)

12 Well
10 Grease
9 Car
8 Slick
7 Black, Gas, Paint
3 Greasy, Salad
2 Burn, Can, Derrick, Lamp, Pit, Tank
0 Illegible
0 Blank
110 Total
47 Different Responses

ORANGE

17 Fruit
14 Apple
8 Juice, Peel
7 Eat
6 Color
5 Florida
4 Peeling
3 Lemon, Red, Sour
2 Drink, Grapefruit, Green, Juicy, Orange, Peach, Round
0 Illegible
0 Blank
110 Total
36 Different Responses

ORGAN

44 Music
20 Piano
18 Play
6 Grinder

TABLE C-1 *Continued*

Males (N=240)	Females (N=110)
ORGAN (cont.)	ORGAN (cont.)
20 Pipe	5 Pipe
11 Grinder	3 Church
3 Guitar, Keys, Player	2 Keys, Pipes
2 Pianist, Sound	0 Illegible
1 Illegible	0 Blank
0 Blank	110 Total
239 Total	18 Different Responses
27 Different Responses	
OYSTER	OYSTER
61 Shell	34 Shell
25 Pearl	8 Pearl, Sea
21 Sea	7 Eat
18 Clam	6 Slimy
12 Fish	5 Clam
11 Slimy	4 Stew
9 Eat	2 Crab, Fish, Ocean, Slime, Slimey, Slippery, Soup
8 Bay	1 Illegible
6 Crab, Ocean	0 Blank
5 Food, Good	110 Total
4 Bed	37 Different Responses
3 Lobster, Raw, Stew	
2 Animal, Bar, Half shell, Seafood, Shells, Shrimp, Snail, Soup	
0 Illegible	
3 Blank	
240 Total	
45 Different Responses	
PAINT	PAINT
74 Brush	34 Brush
24 House	12 Color
21 Color	8 Red
13 Red	5 House
9 Picture	4 Wet
8 Blue	3 Draw, Picture, Smell
6 Bucket, Wet	2 Artist, Blue, Canvas, Grease, Green, Room, Wall, White, Yellow
5 Can, White, Work	0 Illegible
4 Wall	
3 Boy, Cover, Green, Gun, Painter, Smell, Yellow	

TABLE C-1 *Continued*

Males (N=240)		Females (N=110)	
PAINT (cont.)		PAINT (cont.)	
2	Barn, Canvas, Colors, Mess, Pigment, Pretty	0	Blank
0	Illegible	110	Total
0	Blank	37	Different Responses
239	Total		
51	Different Responses		
PAN		PAN	
32	Fry, Pot	31	Pot
26	Cook	15	Cook
17	Peter	13	Fry
14	Dish	10	Dish
11	Gold	4	Peter
7	Food	3	American, Water
6	Water	2	Cooking, Fried, Gold, Handle, Pipes, Wash
5	Frying, Handle	0	Illegible
4	American, Bed, Cake, Fish, Pots	0	Blank
3	Bowl, Bread, Fire, Fried, Pipes, Skillet	110	Total
2	Cup, Flute, God, Grease, Music, Plate, Stove	32	Different Responses
2	Illegible		
0	Blank		
239	Total		
58	Different Responses		
PAPER		PAPER	
56	Pencil	24	Pencil
40	Write	23	Write
24	Pen	10	Pen
14	Clip	9	White
11	Weight, White	7	Clip
9	News	3	Weight
5	Book, Work	2	Book, Hanger, Ink, Print, Read
4	Mill, Read	0	Illegible
3	Back, Dolls	0	Blank
2	Homework, Plate, Thin, Wall, Wood, Writing	110	Total
0	Illegible	35	Different Responses
1	Blank		
240	Total		
57	Different Responses		

TABLE C-1 Continued

Males (N=240)	Females (N=110)
PARTY	PARTY
85 Fun	59 Fun
25 Dance	14 Dance
11 Wild	6 Night
9 Girls	4 Music
8 Night	3 Gay, House
7 People	2 Band, People, Wild
6 Democratic	0 Illegible
5 Booze, Republican	0 Blank
4 Beery, Communist	110 Total
3 Ball, Blast, Combo, Democrat, Group	24 Different Responses
2 Drinking, Drinks, Drunks, Food, Girl, Light, Politics	
0 Illegible	
0 Blank	
240 Total	
65 Different Responses	
PEACE	PEACE
85 War	31 War
25 Corps	10 Corps, Quiet
9 Corp	7 Calm
8 Quiet	4 Tranquility, World
6 Good, Prosperity, Tranquility, World	3 Dove, Happiness
5 Justice	2 Heaven, Hope, Treaty, U N, White
4 Love	1 Illegible
3 Dove	0 Blank
2 Bug, Contentment, Fight, Goal, God, Happiness, Harmony, Heaven, Liberty, Life, Nice, On earth, Pipe, Security, Time, Treaty	110 Total
1 Illegible	40 Different Responses
1 Blank	
239 Total	
69 Different Responses	
PEAR	PEAR
70 Fruit	35 Fruit
32 Tree	19 Apple
31 Peach	12 Peach
26 Apple	11 Eat

TABLE C-1 *Continued*

Males (N=240)		Females (N=110)	
PEAR (cont.)		PEAR (cont.)	
21	Eat	10	Tree
6	Plum	4	Yellow
5	Good, Shaped, Sweet	3	Sweet
3	Food	2	Green, Ripe, Salad
2	See	0	Illegible
1	Illegible	0	Blank
0	Blank	110	Total
239	Total	20	Different Responses
43	Different Responses		
PEARL		PEARL	
60	Oyster	22	Necklace
31	White	16	Oyster
16	Money	11	White
9	Necklace	7	Ring
8	Jewel	5	Gem, Pretty
7	Ocean, Pretty	4	Jewel
6	Valuable	2	Beauty, Clam, Diamond, Jewels, Pure, Round, Ruby
5	Clam, Expensive, Gem, Harbor, Value	1	Illegible
4	Shell	0	Blank
3	Bailey, Beauty, Diamond, Jewelry, Round, Shiny	110	Total
2	Dive, Diver, Precious, Silver, Wealth	39	Different Responses
2	Illegible		
0	Blank		
239	Total		
61	Different Responses		
PEN		PEN	
93	Pencil	41	Pencil
62	Write	28	Ink
49	Ink	24	Write
7	Paper	4	Fountain
4	Fountain	3	Paper
3	Writing	2	Blue
2	Ball, Blue, Knife, Point	0	Illegible
1	Illegible	0	Blank
0	Blank	110	Total
239	Total	14	Different Responses
22	Different Responses		

TABLE C-1 Continued

Males (N=240)

PENCIL

92 Pen
41 Write
32 Lead
14 Eraser, Sharpener
10 Paper
8 Sharp
4 Sharpen
2 Dull, Ink, School, Yellow
0 Illegible
0 Blank
239 Total
28 Different Responses

PEOPLE

36 Crowd
14 Friends
12 Many
11 Group
9 Men
7 Crowds, Person, Persons, Places
6 Faces, Mass, Masses
5 Animals, Population
3 City, Country, Humans, Man, Students, Women
2 Citizens, Everyone, Friendly, Fun, Girls, House, Houses, Mob, Nation, Nice, People, Populace, Saw, Things, Us, World
5 Illegible
0 Blank
239 Total
82 Different Responses

PEPPER

159 Salt
23 Hot
19 Sneeze
8 Black
3 Eat, Shaker, Spice
2 Food, Mill, Salk
0 Illegible
3 Blank

Females (N=110)

PENCIL

41 Pen
19 Write
15 Lead
13 Eraser
5 Sharpener
3 Paper
2 Ink, Wood
0 Illegible
0 Blank
110 Total
18 Different Responses

PEOPLE

17 Crowd
8 Friends
7 Persons
6 Many
5 Mass
4 Nice
3 Group, Men, Places
2 City, Crowds, Human, Lots, Person, Us
0 Illegible
0 Blank
110 Total
57 Different Responses

PEPPER

74 Salt
14 Hot
10 Sneeze
3 Red, Spice
0 Illegible
2 Blank
110 Total
9 Different Responses

TABLE C-1 Continued

Males (N=240)

PEPPER (cont.)

240	Total
23	Different Responses

PHYSICIAN

180	Doctor
6	Sick
5	Doc, Medicine
2	Dr., Father, Heal, Hospital, Ill, Illness, Nurse, Pain
1	Illegible
1	Blank
240	Total
38	Different Responses

PIT

49	Hole
38	Deep
30	Pendulum
13	Fall
6	Black, Dark
5	Ditch, Fire, Viper
4	Barbecue, Pendelum, Snake, Stop
3	Barbeque, Race
2	Cave, Dig, Football, Peach
1	Illegible
1	Blank
240	Total
70	Different Responses

POT

44	Pan
20	Black
16	Kettle
11	Cook, Flower
10	Gold
8	Food
6	Coffee, Stew
5	Ash, Luck, Plant
4	Belly, Holder, Soup
3	Dirty, Dish, Hot, Pie

Females (N=110)

PEPPER (cont.)

PHYSICIAN

61	Doctor
10	Sick
4	Medicine, White
3	Daddy, Heal, Man, Shot
2	Dr., Help, Patient
1	Illegible
0	Blank
110	Total
23	Different Responses

PIT

21	Hole
17	Deep
11	Pendulum
7	Dark
4	Black, Fall, Snake
3	Dig
2	Bar B Q, Bar B Que, Cherry, Ditch
0	Illegible
0	Blank
110	Total
43	Different Responses

POT

24	Pan
15	Coffee
14	Black
9	Cook, Kettle
8	Stew
2	Beans, Boil, Bowl, Dirty, Food
0	Illegible
1	Blank
110	Total
31	Different Responses

TABLE C-1 Continued

Males (N=240)	Females (N=110)
POT (cont.)	POT (cont.)
2 Beans, Boil, Coal, Fire, Stove	
3 Illegible	
3 Blank	
240 Total	
77 Different Responses	
PRIEST	PRIEST
53 Church	31 Church
24 Catholic	18 Catholic
19 Minister, Religion	7 Black, Father
15 Father	6 Minister
13 Preacher	5 Nun
9 Black	3 Pray, Robe
6 God, Saint	2 Devout, Holy, Prayer, Preacher, Religion
5 Holy	
4 Man, Monk, Religious	0 Illegible
3 Good, Preach, Rabbi	0 Blank
2 Bible, Mass, Sermon	110 Total
1 Illegible	33 Different Responses
0 Blank	
240 Total	
62 Different Responses	
PRISON	PRISON
40 Bars	21 Bars
34 Cell	15 Jail
21 Jail	12 Cell
11 Walls	5 Wall
10 Wall	4 Criminal, Walls
8 Convict	3 Crime
7 Bad	2 Bad, Bar, Cage, Confinement
6 Camp	
5 Confinement, Dark, Punishment	0 Illegible
4 Crime	0 Blank
3 Bar, Confine, Guard	110 Total
2 Captive, Capture, Cells, Con Criminal, Enclosed, Gate, Home, Horrible, House, Inmate, Pen Sentence, Warden	49 Different Responses
1 Illegible	
1 Blank	
239 Total	
73 Different Responses	

TABLE C-1 *Continued*

Males (N=240)

RABBIT

17	Animal
15	Hare, Hunt
13	Fast
12	Bunny, Fur
9	Foot
8	Ears
6	Carrot, Jump, Run
5	Fox, Gun, Multiply, White
4	Dog, Jack
3	Ear, Food, Hop, Hunting, Squirrel, Stew
2	Cage, Deer, Easter, Hutch, Kill, Luck, Mouse, Peter, Prolific, Punch, Rabid, Shoot, Woods
3	Illegible
0	Blank
239	Total
81	Different Responses

RADIO

83	Music
22	Television
14	Listen
13	T.V.
11	Station
8	Loud
7	Noise
5	Announcer, Hear
4	Ham, Play, TV
3	Program, Waves
2	Clock, News, Old, Receiver, Set, Transmitter, Tube, TV., Wave
2	Illegible
0	Blank
239	Total
56	Different Responses

Females (N=110)

RABBIT

10	Hop
9	Bunny, Hare
8	Ears
7	Fur
5	Run, Soft, White
4	Animal
3	Carrot, Dog, Foot
2	Babies, Cat, Deer, Eat, Gun, Peter, Tail
0	Illegible
0	Blank
110	Total
44	Different Responses

RADIO

45	Music
9	Noise
8	Loud
7	TV
5	Listen
4	Television
3	Play, Station
2	News, Set
0	Illegible
0	Blank
110	Total
32	Different Responses

TABLE C-1 Continued

Males (N=240)

RAIN

63	Wet
28	Water
27	Coat
16	Snow
8	Umbrella
6	Thunder
5	Fall, Sun
4	Storm
3	Cloud, Hat, Pour, Raincoat
2	Clouds, Cold, Drop, Drops, Dry, Forest, Hard, Weather
3	Illegible
4	Blank
239	Total
63	Different Responses

RECORD

68	Player
24	Music
13	Play
9	Song
7	Phonograph
6	Album, Listen
5	Radio, Singer
4	Stereo
3	Beatles, Break, Hop, Shop, Sing
2	Disc, Disk, Jump, Keep, Store, Tape, Time
1	Illegible
1	Blank
240	Total
84	Different Responses

REPTILE

137	Snake
16	Animal
11	Lizard
9	Alligator
5	Scales
4	Cold
3	Crocodile, Slimy, Swamp

Females (N=110)

RAIN

22	Wet
11	Snow
8	Coat, Water
6	Umbrella
5	Cloud
4	Boots, Shine
3	Hat, Sleet, Storm, Thunder
2	Clouds, Cold, Drop
0	Illegible
0	Blank
110	Total
39	Different Responses

RECORD

40	Player
10	Music
8	Play
6	Song
4	Album
3	Disc, Listen, Stereo
2	Break, Disk, Write
0	Illegible
0	Blank
110	Total
38	Different Responses

REPTILE

54	Snake
7	Alligator
5	Lizard
4	Animal, Crocodile
2	Amphibian, Fish, Green, Jungle, Scales, Slimy, Swamp, Ugh

TABLE C-1 Continued

Males (N=240)	Females (N=110)
REPTILE (cont.)	REPTILES (cont.)
2 Amphibian, Dangerous, Garden, Green, Insect, Mammal, Turtle	1 Illegible
0 Illegible	0 Blank
1 Blank	110 Total
239 Total	32 Different Responses
49 Different Responses	
RESIDENT	RESIDENT
42 House	24 House
26 Home	16 Home
23 Hall	13 Hall
16 Live	11 Live
14 Doctor	8 Dorm
12 Advisor	5 Doctor, Student
11 Dorm	4 Person
6 Inhabitant, Physician, Student	3 Dormitory
5 Occupant, Person	2 Dorms, Head, Living, Occupant
4 Adviser, Apartment, Man	0 Illegible
2 Dorm., Lives, Living, Nurse, Owner, School, Surgeon, Teacher, Town	0 Blank
1 Illegible	110 Total
2 Blank	26 Different Responses
240 Total	
59 Different Responses	
RIBBON	RIBBON
43 Blue	28 Hair
29 Red	13 Bow, Red
27 Hair	10 Blue
19 Bow	4 Pretty, Satin, Tie
15 Typewriter	3 Package, Scarlet, Typewriter
13 Tie	2 Color, Cut, Present, Silk, Velvet
8 Cut	0 Illegible
6 Package, Scarlet	0 Blank
5 Prize, Tape	110 Total
4 Present, Silk, String, Win	30 Different Responses
3 Type	
2 First, Medal, Pretty, Smooth, Spool	
0 Illegible	

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
RIBBON (cont.)		RIBBON (cont.)	
0	Blank		
240	Total		
56	Different Responses		
RIFLE		RIFLE	
79	Gun	33	Gun
27	Bullet	19	Shoot
36	Shoot	12	Shot
9	Fire	11	Bullet
7	Shotgun	6	Fire
6	Shot	5	Hunt, Man
5	Hunt, Kill	3	Kill, Long
4	Hunting, Man	0	Illegible
3	Target	0	Blank
2	Army, Barrel, Butt, Cartridge, Pistol, Precision, Scope, Shooting, Trigger	110	Total
		22	Different Responses
1	Illegible		
0	Blank		
240	Total		
46	Different Responses		
RING		RING	
63	Finger	22	Finger
23	Bell	13	Wedding
20	Wedding	11	Marriage
15	Marriage	10	Diamond
14	Diamond, Gold	8	Bell
10	Girl	4	Gold
6	Circus, Class	3	Hand, Pearl, Round
5	Ringo	2	Bottle, Circus, Door, Engaged, Married, Marry, Stone, Toss
4	Married, Marry, Round, Watch		
3	Hand, Key, Phone		
2	Bottle, Box, Circle, Engagement, Fire, Jewel, Sing, Stone	0	Illegible
1	Illegible	0	Blank
0	Blank	110	Total
240	Total	34	Different Responses
47	Different Responses		

TABLE C-1 Continued

Males (N=240)

RIVER

Count	Response
65	Water
23	Stream
13	Bank
12	Lake
10	Creek
9	Mississippi, Red
7	Flow
6	Wet
5	Cumberland
4	Boat, Miss., Run
3	Bed, Blue, Bridge, Sea, Wide
2	Big, Cross, Deep, Fish, Jordan, Muddy, Ocean, Ohio, Rio, Road
2	Illegible
0	Blank
240	Total
60	Different Responses

ROAD

Count	Response
25	Car, Highway, Street
11	Dirt, Path
9	Travel
8	Drive, Pavement, Way
6	Long
5	Map, Runner, Winding
4	Line
3	Lane, Mud, Rough, Trail
2	Bridge, Cars, Country, Dust, Freeway, Go, Gravel, Pave, Paved, Straight, Trip, Work
4	Illegible
0	Blank
239	Total
74	Different Responses

Females (N=110)

RIVER

Count	Response
27	Water
10	Stream
7	Lake
5	Muddy
3	Boat, Cool, Red, Wet, Wide
2	Bank, Bed, Canoe, Current, Flow, Mud, Ohio
0	Illegible
0	Blank
110	Total
48	Different Responses

ROAD

Count	Response
18	Street
14	Car
8	Highway, Travel
5	Dirt
3	Drive, Path, Way, Winding
2	Dust, Long, Map, Trail, Walk
1	Illegible
0	Blank
110	Total
48	Different Responses

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
ROOM		ROOM	
43	Door	16	Window
41	Window	11	Door
17	Bed	9	Bed
9	Small	5	Home, House
8	Walls	4	Chair, Number
7	Floor, House	3	Bedroom, Dorm, Mine, Wall
5	Building, Number	2	Desk, Large, Small, Walls
4	Big, Furniture, Large, Sleep, Space, Wall	0	Illegible
3	Class, Live, Living, Open, Study	0	Blank
2	Bath, Chair, Desk, Dorm, Mine, Place, Residence, Stay	110	Total
1	Illegible	57	Different Responses
2	Blank		
240	Total		
68	Different Responses		
ROSE		ROSE	
91	Flower	27	Flower
53	Red	21	Red
12	Smell	8	Smell
10	Bud, Petal, Thorn	6	Petal, Sweet
6	Sweet	5	Pink
5	Tulip	3	Beauty, Bush, Pretty, Thorn
4	Bush	2	Color, Fragrant, Perfume, Tulip
3	Pretty	0	Illegible
2	Beauty, Garden	0	Blank
1	Illegible	110	Total
0	Blank	31	Different Responses
240	Total		
43	Different Responses		
SAINT		SAINT	
30	Good	22	Church
24	Church, Sinner	13	Good
11	Peter, Religion	9	Sinner
10	God, Holy	6	Holy
8	John	5	God
7	Priest	4	Christopher
6	Joan	3	Angel, Francis, John

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
SAINT (cont.)		SAINT (cont.)	
5	Catholic, Christopher, Francis, Thomas	2	Augustine, Catholic, Devil, Godly, Halo, Heaven, Joan, Peter
4	Angel, Mary	0	Illegible
3	Devil, Joseph	0	Blank
2	Christ, Halo, James, Louis, Nicholas, Paul, Savior	110	Total
2	Illegible	43	Different Responses
0	Blank		
240	Total		
74	Different Responses		
SALT		SALT	
137	Pepper	75	Pepper
29	Shaker	13	Sugar
16	Sugar	6	Shaker
11	Water	2	Bitter, Taste, White
5	Food	0	Illegible
3	Taste	0	Blank
2	Ocean, Seasoning, Tablet, Tablets, White	110	Total
0	Illegible	16	Different Responses
0	Blank		
239	Total		
39	Different Responses		
SAW		SAW	
51	Wood	25	Wood
46	Cut	14	See
23	Hammer	13	Hammer
19	See	9	Cut
14	Blade	7	Dust
8	Teeth, Tree	5	Seen
7	Chain	3	Blade, Buzz, Mill, Teeth
5	Horse, Mill	2	Horse, Lumber, Nail, Tooth
4	Seen, Tooth	0	Illegible
3	Board, Buzz, Dust, Log, Work	0	Blank
2	Logs, Lumber, Sawdust, Through, Axe, Build	110	Total
0	Illegible	31	Different Responses
0	Blank		
239	Total		
41	Different Responses		

TABLE C-1 Continued

Males (N=240)	Females (N=110)
SCOUT	SCOUT
116 Boy	42 Boy
11 Uniform	23 Girl
7 Good, Master	4 Troop
6 Cub	3 Green, Honor, Uniform
5 Look	2 Master
4 Camping	1 Illegible
3 Eagle, Search, Woods	0 Blank
2 Badges, Boys, Camp, Explore, Girl, Honor, Indian, Leader, Loyal, Oath, Spy, Troop, Troup	110 Total
1 Illegible	36 Different Responses
2 Blank	
240 Total	
69 Different Responses	
SEA	SEA
44 Ocean	14 Ocean
32 Water	12 Water
15 Fish	11 Blue
14 Ship	10 Waves
8 Gull, Waves	6 Boat
7 Salt, Shore	5 Swim
6 Wave	4 Salt, Wave
5 Boat, Coast, Swim	3 Beautiful, Fish, Foam, Green, Shore
4 Blue, Horse, Sand, Surf	2 Gull, Roar, Roll, Sail, Ship
3 Breeze, Food, Roar, Sail	0 Illegible
2 Bird, Endless, Good, Land, Sailing, Seagull	0 Blank
0 Illegible	110 Total
0 Blank	37 Different Responses
240 Total	
70 Different Responses	
SHEEP	SHEEP
51 Wool	25 Wool
20 Goat	13 Goat
18 Dog	8 Dog
16 Herd	7 Herd
14 Lamb	6 Lamb
10 Animal, Herder	5 Cow
7 Farm	4 Ewe

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
SHEEP (cont.)		**SHEEP (cont.)**	
6	Skin	2	Animal, Field, Fields, Ram, Shepherd, Skin, Soft, White
5	Cattle, Cow, Ewe, Shepard	0	Illegible
4	Grass, Pasture, Ram, Shepherd, Sleep, White	0	Blank
3	Black	110	Total
2	Deer, Duck, Flock, Hearder	41	Different Responses
0	Illegible		
1	Blank		
239	Total		
55	Different Responses		
SHELL		**SHELL**	
51	Sea	39	Sea
16	Fish	8	Beach, Fish, Ocean
15	Ocean	4	Crab
14	Oil	3	Clam, Egg, Gas, Pink
12	Beach, Gas	2	Oyster, Pretty, Sea shore, Snail, Station
8	Egg, Gasoline, Gun, Hard	0	Illegible
7	Snail	0	Blank
6	Clam	110	Total
5	Seashore, Shore	35	Different Responses
4	Oyster		
3	Cover, Crab		
2	Animal, Conch, Game, Rifle, Turtle		
1	Illegible		
0	Blank		
239	Total		
65	Different Responses		
SHIP		**SHIP**	
77	Boat	22	Sail
31	Sail	19	Sea
22	Water	18	Boat
18	Sea	7	Water
15	Ocean	6	Ocean
9	Shore	3	Cruise, Travel
4	Captain, Sink, Vessel	2	Ahoy, Captain, Fools, Sails
3	Wreck	0	Illegible
2	Dock, Mast, Men, Navy, State, Steam, Travel, Wrecked	0	Blank
		110	Total
		35	Different Responses

TABLE C-1 *Continued*

Males (N=240)	Females (N=110)
SHIP (cont.)	SHIP (cont.)
4 Illegible	
0 Blank	
240 Total	
51 Different Responses	
SHIRT	SHIRT
47 Pants	17 Skirt
27 Wear	11 Blouse, Tie
14 Button, Tie	9 Pants
11 Tail, White	6 Button
9 Clothes	5 Buttons, Wear
6 Buttons, Sleeve	4 Collar, Trousers
5 Trousers	3 Dress, Shorts, Tail, White
4 Sweater, T	2 Blue, Boy, Clean, Iron, Sweater
3 Coat, Collar, Iron, Slacks, Sport	0 Illegible
2 Back, Blouse, Blue, Boy, Clean, Color, Colorful, Dirty, Dress, Gant, Pretty, Short, Skirt, Stripe, Tails, Waist	0 Blank
1 Illegible	110 Total
0 Blank	35 Different Responses
239 Total	
66 Different Responses	
SHOE	SHOE
47 Foot	25 Lace
36 Lace	19 Sock
23 String	12 Foot
20 Sock	7 String
19 Horn	6 Horn, Tie
14 Leather	5 Leather
12 Shine	4 Brown
7 Tie, Wear	3 Stocking
5 Boot, Feet, Tree	2 Hurt, Laces, Shine, Wear
3 Black	0 Illegible
2 Heel, Toe, Tongue, Walk, Weejun	0 Blank
0 Illegible	110 Total
0 Blank	28 Different Responses
239 Total	
44 Different Responses	

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
SINK		SINK	
32	Kitchen	19	Dishes
21	Swim	14	Kitchen, Water
20	Water	11	Wash
15	Wash	8	White
11	Basin, Ship	5	Drown
9	Dishes, Float, White	3	Dish, Swim
7	Drain, Drown	2	Basin, Dirty, Drain, Drop, Fall, Hole, Stopper
6	Hole	0	Illegible
5	Down	0	Blank
4	Bathroom, Lavatory	110	Total
3	Bottom, Dirty, Drop, Faucet	34	Different Responses
2	Bowl, Deep, Dish, Fall, Hand, Mud, Pit, Quicksand, Soap, Stink, Tub		
0	Illegible		
2	Blank		
240	Total		
64	Different Responses		
SINNER		SINNER	
35	Bad	22	Bad
28	Saint	12	Saint
17	Evil, God, Hell	7	Evil
11	Man	5	Hell, Repent, Wrong
10	Church	4	Church
7	Repent	3	God, Sin
6	Wrong	2	Human, Man, Me, None, Religion
5	Devil	0	Illegible
4	Fun	0	Blank
3	Forgive, Me	110	Total
2	All, Black, Christ, Everyone, Forgiveness, Good, Lost, Nogood, People, Religion, Thief	48	Different Responses
4	Illegible		
3	Blank		
239	Total		
71	Different Responses		

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
SISTER		SISTER	
141	Brother	66	Brother
27	Girl	6	Friend, Girl
9	Mother	4	Fun
5	Little, Nun	3	None, Nun
2	Good, Love, Nice, None, Pain, Trouble, 3	2	Cute, Sweet, Younger
0	Illegible	0	Illegible
3	Blank	0	Blank
240	Total	110	Total
48	Different Responses	25	Different Responses
SKIRT		SKIRT	
61	Blouse	61	Blouse
58	Girl	9	Dress
46	Dress	5	Shirt, Wear
7	Shirt	3	Sweater
5	Pants, Wear	2	Blue, Clothes
4	Short, Tie	0	Illegible
3	Legs	0	Blank
2	Button, Clothes, Collar, Girls, Madras, Pretty, Red, Shoe, Sweater	110	Total
0	Illegible	30	Different Responses
0	Blank		
239	Total		
46	Different Responses		
SMOKE		SMOKE	
115	Fire	41	Fire
46	Cigarette	34	Cigarette
14	Cigar	8	Cigar
7	Pipe	3	Pipe
4	Cancer, Smog	2	Dirty, Drink, Smog
3	Stack	0	Illegible
2	Cigarettes, Cigarrette, Drink, Eyes, Gray, Hot, Water, White	0	Blank
0	Illegible	110	Total
0	Blank	25	Different Responses
239	Total		
45	Different Responses		

TABLE C-1 Continued

Males (N=240)

SNAKE

50	Bite
23	Grass
16	Reptile
12	Crawl
8	Rattle
6	Animal
5	Long, Rattler
4	Black, Evil, Skin
3	Asp, Bit, Coil, Dance, Pit, Poisonous, Serpent, Slime, Slimy, Slither
2	Curl, Danger, Doctor, Green, Kill, Lizard, Low, Poison, Scaly, Sneaky, Squirm, Strike, Ugly, Wiggle, Worm
0	Illegible
0	Blank
239	Total
78	Different Responses

SOAP

51	Wash
37	Clean
23	Boy , Box
20	Water
15	Dish
12	Bath, Operat
11	Suds
9	Bar
5	Ivory
4	Towel, White
3	Bubble, Bubbles, Slippery
2	Cleanser, Dirt, Opra, Slick
0	Illegible
2	Blank
240	Total
37	Different Responses

Females (N=110)

SNAKE

20	Bite
9	Grass
7	Slimy
5	Reptile
4	Eel, Poison, Skin
3	Rattler, Scared, Slither,
2	Asp, Crawl, Fear, Green, Rattle
0	Illegible
1	Blank
110	Total
52	Different Responses

SOAP

19	Water
18	Clean, Wash
17	Dish
6	Box, Suds
5	Bar
3	Bath
2	Pink, White
0	Illegible
0	Blank
110	Total
24	Different Responses

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
SOLDIER		SOLDIER	
34	War	16	War
29	Army	15	Army
28	Gun	12	Gun
18	Fight	8	Fight, Uniform
15	Sailor	7	Man
14	Man	4	Sailor
6	Kill, Rain, Rifle	2	Boy, Die, Fighter, Fortune, Kill, March
5	Boy, Uniform	0	Illegible
4	Fighter, Helmet, March	0	Blank
3	Dead, Die, Military	110	Total
2	Battle, Death, Foot, G.I., Navy, Protector, Walk, Work	41	Different Responses
1	Illegible		
0	Blank		
239	Total		
60	Different Responses		
SPIDER		SPIDER	
100	Web	34	Web
30	Insect	15	Bug
20	Bug	11	Black
14	Black	5	Legs
8	Legs	4	Crawl, Insect
6	Black widow	2	Awful, Black widow, Flea, Fly, Ick, Scared, Ugh, Ugly, Webb
5	Fly	0	Illegible
4	Ant	0	Blank
3	Corvair, Poison, Webb	110	Total
2	Arachnid, Big, Bite, Unsect	34	Different Responses
0	Illegible		
0	Blank		
240	Total		
51	Different Responses		
STAMP		STAMP	
85	Letter	54	Letter
18	Postage	10	Mail
16	Collection, Mail	9	Postage
9	Lick	8	Lick
6	Collector, Post Office, Rubber	3	Stick
5	Machine, 5 cents	2	Collection, Envelope, Pad, Post card, Post Office, Purple
4	Book, Envelope		

TABLE C-1 Continued

Males (N=240)

STAMP (cont.)

3 Collect, Stick
2 Air Mail, Envelop, Foot, Glue, Hit, Money, Out, Pad, Paste, Stomp, Washington, 4 cents
2 Illegible
0 Blank
240 Total
54 Different Responses

STARS

69 Sky
24 Night
20 Moon
13 Heaven
11 Heavens
9 Bright
5 Beautiful, High, Stripes, Universe
4 Above, Twinkle
3 Far, Light, Love, Shine
2 Astronomy, Constellation, Faraway, Galaxy, Infinity, Planet, Space
1 Illegible
3 Blank
240 Total
59 Different Responses

STEAM

37 Hot
33 Heat
28 Engine
25 Water
15 Iron
13 Bath
8 Boat
7 Vapor
6 Smoke
4 Kettle
3 Room
2 Clean, Creek, Locomotive, Pipe, Roller, Ship, Shovel, Wet

Females (N=110)

STAMP (cont.)

0 Illegible
0 Blank
110 Total
25 Different Responses

STARS

37 Sky
13 Night
12 Moon
5 Beautiful
4 Bright, Twinkle
3 Heaven, Light, Love, Stripes
0 Illegible
2 Blank
110 Total
31 Different Responses

STEAM

23 Heat
17 Hot
15 Engine
13 Water
10 Iron
5 Boat
4 Kettle, Ship
2 Moist, Wet
0 Illegible
0 Blank
110 Total
25 Different Responses

TABLE C-1 Continued

Males (N=240)	Females (N=110)
STEAM (cont.)	STEAM (cont.)
2 Illegible	
5 Blank	
239 Total	
56 Different Responses	
STEP	STEP
42 Up	25 Up
33 Down	15 Stairs
29 Walk	11 Stair
26 Stairs	10 Walk
23 Ladder	8 Down
11 Fall	7 Ladder
4 Stair	5 Fall
3 Climb, Door, High, Stone, Trip	3 Climb, Run
2 Hop, House, Mother, On, Sister, Stop	2 Feet, Foot, Forward
2 Illegible	1 Illegible
2 Blank	0 Blank
240 Total	110 Total
59 Different Responses	28 Different Responses
STORE	STORE
52 Buy	41 Buy
27 Book	10 Shop
16 Food	8 Window
13 Shop, Window	6 Book
10 Money	5 Clothes, Grocery, Money
8 Room, Sell	3 Books, Bought
6 Clothes, Grocery, Merchandise	2 House
5 Bought, House	0 Illegible
4 Goods, Groceries	0 Blank
3 Front, Purchase	110 Total
2 Articles, Candy, Department, Dept., Door, Items, Keeper, Shoe	32 Different Responses
2 Illegible	
0 Blank	
239 Total	
57 Different Responses	

TABLE C-1 Continued

Males (N=240)

STOREHOUSE

46	Warehouse
17	Grain
16	Food
11	Boxes, Goods
8	Room, Supplies
4	Ham, Storage
3	Building, Keep, Supply, Wares
2	Barrels, Big, Bomb, Box, Cold, Cotton, Furniture, Garage, Good, Junk, Meat, Space, Store, Things, Tobacco, Trunk, Trunks, Winter, Wood, Work
2	Illegible
1	Blank
240	Total
93	Different Responses

STORM

42	Rain
35	Hurricane
25	Wind
13	Sea
8	Lightning, Thunder
7	Tornado, Weather
5	Bad, Violent
4	Clouds, Lightening
3	Cloud, Dark, Dora, Fury, Gale, Ocean
2	Boat, Center, Danger, Florida, Squall, Tempest, Turbulence, Window
0	Illegible
1	Blank
240	Total
68	Different Responses

STOVE

62	Hot
53	Cook
31	Pipe
17	Heat
11	Fire

Females (N=110)

STOREHOUSE

17	Warehouse
8	Food
7	Boxes
6	Grain
5	Furniture
4	Keep, Store
3	Barn, Supply, Tools, Wares
2	Big, Box, Goods, Luggage, Storage, Suitcase, Trunks, Wood
0	Illegible
0	Blank
110	Total
50	Different Responses

STORM

21	Wind
15	Thunder
12	Rain
8	Hurricane
6	Tornado
5	Cloud, Lightning
4	Black, Dark
2	Clouds, Dora, Gloomy, Lightening, Violent, Warning
0	Illegible
0	Blank
110	Total
33	Different Responses

STOVE

31	Cook
21	Hot
12	Pipe
10	Heat
8	Oven
4	Warm

TABLE C-1 Continued

STOVE (cont.)

Males (N=240)		Females (N=110)	
10	Oven	3	Fire, Food, Warmth
7	Wood	2	Smoke, Wood
6	Black, Food	0	Illegible
4	Kitchen	0	Blank
3	Iron	110	Total
2	Burn, Coal, Electric, Pot, Range, Warm	22	Different Responses
1	Illegible		
1	Blank		
239	Total		
32	Different Responses		

STREET

Males (N=240)		Females (N=110)	
46	Road	19	Road
25	Light	14	Light
22	Car	7	Walk
13	Avenue	6	Avenue, Live
10	House	5	Car, Lamp
9	Corner	4	Cars
6	Number, Sign, Walk	3	Drive, House, Pavement, Sign
5	Lamp, Long	2	Cross, Sidewalk, Tar, Town, Trees
4	Alley, Fight, Home, Live, Sidewalk	0	Illegible
3	City, Dark	0	Blank
2	Address, Ave., Black, Cleaner, Dirt, Pavement, Place, Traffic	110	Total
0	Illegible	39	Different Responses
2	Blank		
240	Total		
69	Different Responses		

SUMMER

Males (N=240)		Females (N=110)	
72	Winter	24	Winter
48	Hot	19	Hot
25	Fun	14	Fun
11	Heat	5	Vacation
9	Warm	4	Warm
8	Vacation	3	Heat, Reading, Spring, Sun
5	Reading, School	2	Lazy, Months, Short, Swimming
4	Night, Sun		
3	Spring, Weather		

TABLE C-1 Continued

Males (N=240)

SUMMER (cont.)

2 Autumn, Job, Pleasant, Swim
0 Illegible
0 Blank
239 Total
50 Different Responses

SYRUP

55 Maple
48 Pancakes
23 Pancake
16 Waffles
13 Sticky
12 Sweet, Waffle
9 Honey
8 Thick
5 Corn
4 Molasses, Sugar
3 Hotcakes
2 Breakfast, Cane, Food, Pan Cakes, Pour
1 Illegible
0 Blank
240 Total
35 Different Responses

TELEVISION

38 Radio
33 Watch
15 Show
14 Set
11 Program
10 Tube
9 See
7 Picture
6 Entertainment
5 Look

Females (N=110)

SUMMER (cont.)

0 Illegible
0 Blank
110 Total
37 Different Responses

SYRUP

25 Pancakes
22 Maple
9 Sweet
8 Pancake, Waffles
7 Waffle
5 Honey, Molasses, Sticky
3 Breakfast, Thick
2 Corn
0 Illegible
0 Blank
110 Total
20 Different Responses

TELEVISION

18 Watch
11 Show
8 Radio
7 Program
5 Movie, Picture
4 Screen
3 Programs, See, Shows
2 Commercial, Set, T.V., Time

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
TELEVISION (cont.)		**TELEVISION (cont.)**	
4	T.V., TV	0	Illegible
3	Color, Night, Screen, Time, Waste	0	Blank
2	Camera, Commercial, Entertain, Fun, Movie, NBC, News, View, Room, Program	110	Total
0	Illegible	49	Different Responses
1	Blank		
240	Total		
75	Different Responses		
TENNIS		**TENNIS**	
85	Ball	34	Racket
49	Racket	29	Ball
15	Play	10	Play
12	Shoes	7	Game
10	Court	5	Court
9	Sport	4	Racquet
8	Game	3	Balls
7	Balls, Racquet	2	Fun, Sport
5	Fun	0	Illegible
4	Golf, Raquet	0	Blank
3	Shoe	110	Total
2	Exercise, Net	23	Different Responses
0	Illegible		
0	Blank		
239	Total		
32	Different Responses		
THIEF		**THIEF**	
73	Steal	51	Steal
24	Robber	15	Robber
23	Crook	4	Crook
7	Catch	3	Catch
5	Beggar	2	Bandit, Criminal, Man, Night, Run
4	Car, Money, Run	0	Illegible
3	Bad, Cop, Man, Rob, Sneak		

TABLE C-1 Continued

Males (N=240)	Females (N=110)
THIEF (cont.)	THIEF (cont.)
2 Burglar, Burgular, Caught, Cops, Criminal, Honest, Jail, Mask, Night, Police, Prison, Sinner, Stolen 2 Illegible 5 Blank 239 Total 73 Different Responses	0 Blank 110 Total 36 Different Responses
THORN	THORN
42 Bush 38 Hurt 31 Rose 16 Pain 15 Stick 9 Briar, Ouch 8 Prick 6 Sharp 5 Side, Sticker, Tree 4 Blood, Foot 3 Thistle 2 Barb, Cut, Flesh, Point, Splinter 0 Illegible 0 Blank 239 Total 49 Different Responses	40 Rose 21 Hurt 13 Bush 5 Stick 3 Prick, Sharp, Thistle 2 Briar, Crown, Side, Sticker 0 Illegible 0 Blank 110 Total 25 Different Responses
THUNDER	THUNDER
111 Lightning 25 Lightening 23 Rain 17 Storm 13 Noise 12 Loud 10 Cloud 3 Lighting, Road	43 Lightning 20 Lightening 12 Rain 7 Storm 5 Loud, Roar 4 Cloud 3 Noise 2 Sky

TABLE C-1 Continued

Males (N=240)

THUNDER (cont.)

2	Ball, Clouds, Sky
2	Illegible
0	Blank
239	Total
26	Different Responses

TIGER

59	Lion
20	Stripes
16	Cat
14	Jungle
10	Stripe
7	Animal, Fierce
5	Gun, India
4	Growl, Hunt, Mean, Striped, Yellow
3	Bengal, Claw, Lily, Strong
2	Blake, Bright, Danger, Eat, Kill, Large, Paw, Northside, Shark, Tail, Strength, Strips
3	Illegible
0	Blank
239	Total
67	Different Responses

TOBACCO

81	Smoke
19	Pipe
18	Cigarette
13	Cigar
9	Barn, Cancer, Chew, Road
7	Cigarettes
6	Brown
5	Field
4	Leaves

Females (N=110)

THUNDER (cont.)

0	Illegible
0	Blank
110	Total
18	Different Responses

TIGER

24	Lion
19	Stripes
7	Fierce
6	Cat
5	Growl
4	Jungle, Stripe
3	Striped, Wild
2	Africa, Bite, India, Leopard, Roar, Yellow
1	Illegible
1	Blank
110	Total
36	Different Responses

TOBACCO

25	Cigarette
24	Smoke
12	Cigar
8	Cigarettes
7	Field
6	Pipe
3	Kentucky, Leaves
2	Fields, Leaf
0	Illegible

TABLE C-1 Continued

Males (N=240)

TOBACCO (cont.)

3	Farm, Plant, Smoking, Work
2	Cigaretts, Cigarrette, Cut, Juice, Smell
0	Illegible
0	Blank
240	Total
50	Different Responses

TOMATO

90	Red
21	Juice
14	Plant
8	Eat, Garden, Vine
7	Vegetable
5	Catsup, Ketchup, Soup
4	Can, Food, Patch, Potato, Ripe
3	Girl, Good, Lettuce
2	Bad, Bush, Green, Juicy, Salad, Sauce, Worm
0	Illegible
1	Blank
239	Total
49	Different Responses

TOWN

107	City
15	House, Small
13	Nashville, People
10	Country
8	Home, Village
6	Hall
2	Atlanta, Birmingham, Ship, Street
0	Illegible
1	Blank
240	Total
49	Different Responses

Females (N=110)

TOBACCO (cont.)

0	Blank
110	Total
28	Different Responses

TOMATO

52	Red
7	Soup
5	Eat
4	Garden, Plant
3	Juice, Vegetable, Vine
2	Fruit, Ketchup, Lettuce, Potato
0	Illegible
0	Blank
110	Total
33	Different Responses

TOWN

47	City
10	Home
5	Country, House, Nashville
4	Hall
3	Houses, Small
2	Houston, People, Street, Streets
0	Illegible
0	Blank
110	Total
32	Different Responses

TABLE C-1 Continued

Males (N=240)	Females (N=110)
TRIGGER	TRIGGER
165 Gun	72 Gun
13 Horse	14 Horse
11 Happy	5 Bullet
9 Finger	4 Happy
5 Pull	2 Rifle, Roy, Shoot
4 Bullet, Pistol, Rifle	0 Illegible
2 Guard, Hair, Shoot	0 Blank
0 Illegible	110 Total
0 Blank	16 Different Responses
239 Total	
29 Different Responses	
TROUT	TROUT
153 Fish	58 Fish
25 Stream	13 Stream
13 Fishing	5 Fishing
5 Eat, Speckled	4 Lake
4 Catch, Lake	2 Bones, Eat, Fried, Pole, River
3 Line	0 Illegible
2 Food, Fresh	0 Blank
0 Illegible	110 Total
0 Blank	29 Different Responses
240 Total	
34 Different Responses	
TURTLE	TURTLE
71 Slow	41 Slow
50 Shell	15 Shell
27 Dove	10 Dove
9 Neck	4 Crawl, Egg, Soup
5 Green	2 Lake, Mock, Neck, Pond
4 Animal, Box, Hard, Soup, Water	1 Illegible
3 Crawl, Egg, Hare, Rabbit, Reptile, Tortoise	0 Blank
2 Fish, Pet, Rock, Sea, Small, Snake	110 Total
0 Illegible	33 Different Responses
0 Blank	
240 Total	
50 Different Responses	

TABLE C-1 Continued

Males (N=240)

TYPEWRITER

29	Paper
22	Ribbon
18	Keys
17	Type
15	Write
12	Theme
10	Work
7	Key
6	Letter, Machine, Print
5	Words
4	Aid, Electric, Neat, Office, Secretary
3	Case, Letters, Peck, Study, Term Paper
2	Click, Desk, Fast, Ink, Papers, Tap, Themes, Typing, Writing
0	Illegible
0	Blank
239	Total
64	Different Responses

Females (N=110)

TYPEWRITER

15	Paper
11	Keys
8	Type
7	Write
6	Work
5	Secretary, Theme
4	Ink, Letter, Ribbon
3	Fast, Noise
2	Print, Typing
0	Illegible
0	Blank
110	Total
45	Different Responses

Males (N=240)

VINE

115	Grape
34	Wine
14	Grapes
4	Branch, Green, Ivy
3	Bush, Drink, Leaf, Red, Swing, Tarzan
2	Fruit, Grapevine, Growth, Morning Glory, Plant, Wall, Ripened, Tomato, Tree, Twine
4	Illegible
1	Blank
240	Total
44	Different Responses

Females (N=110)

VINE

45	Grape
11	Grapes, Wine
5	Green, Ivy
2	Clinging, Tree, Vinegar
0	Illegible
0	Blank
110	Total
35	Different Responses

TABLE C-1 Continued

Males (N=240)

WAFFLE

70 Iron
29 Eat
23 Pancake, Syrup
19 Breakfast
14 Food, Good
4 Flat
3 Grill, Morning
2 Brown, Griddle, Holes, Kitchen, Maple
0 Illegible
1 Blank
239 Total
43 Different Responses

WATCH

93 Time
32 Clock
11 Fob
9 Chain
8 Hand
7 Pocket, Wrist
6 Crystal
5 See, Tick
4 Dial
3 Band, Glass, Gold, Look, Stop
2 Broken, Girl, Girls, Ring, Word
0 Illegible
0 Blank
240 Total
49 Different Responses

WATER

39 Drink
28 Wet
24 Hose
14 Glass

Females (N=110)

WAFFLE

25 Iron
16 Breakfast, Syrup
11 Eat
6 Food, Pancake
5 Good
3 Butter
2 Cake, Honey, Morning, Warm
0 Illegible
0 Blank
110 Total
26 Different Responses

WATCH

45 Time
8 Hand
6 Chain, Clock, Stop
4 Band, Tick, Wrist
3 Look
2 Broken, Face, Guard
0 Illegible
0 Blank
110 Total
30 Different Responses

WATER

21 Drink
11 Wet
7 Glass
5 Cold, Hose, Ice

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
WATER (cont.)		WATER (cont.)	
8	Lake	4	Cool, Faucet, Hot
7	Bucket, Cold	3	Milk
6	Thirsty	2	Fall, Ocean, River, Sea, Stream, Swim, Swimming, Thirst
5	Fire	0	Illegible
4	Cool, H20, Liquid, Pipe, Thirst	0	Blank
3	Bath, Boat, Cup, Hot, Ice, Rain, Smoke, Tap	110	Total
2	Fall, Faucet, Fish, Fountain, Good, Hydrant, Hydrogen, Milk, River, Sink, Ski, Soap, Well, Swimming	43	Different Responses
2	Illegible		
0	Blank		
239	Total		
63	Different Responses		
WEDDING		WEDDING	
35	Marriage	21	Bride
27	Bride	12	White
16	Cake	10	Marriage
15	Bells	9	Bells
13	Ring	8	Love
9	Happiness	7	Ring
7	Marry, White	4	Happy
6	Happy	3	Cake, Marry
5	Ceremony, Love	2	Beautiful, Church, Day, Gown, Sister
4	Flowers, Married	0	Illegible
3	Bell, Day, Girl, Groom	0	Blank
2	Beautiful, Church, Dress, Divorce, Funeral, Good, Husband, Pretty, Reception, Sex, Two, Wife	110	Total
0	Illegible	37	Different Responses
0	Blank		
239	Total		
79	Different Responses		

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
WHALE		WHALE	
62	Fish	23	Fish
34	Big	14	Big
20	Mammal	12	Ocean
17	Ocean	7	Water
14	Sea	6	Moby Dick, Spout
10	Large	5	Mammal
8	Water	4	Large, Sea, White
7	Huge, Jonah, Moby Dick	3	Huge, Jonah
6	White	2	Blubber, Giant, Moby
4	Boat, Bone	1	Illegible
3	Blubber, Blue, Noah, Oil	0	Blank
2	Animal, Enormous, Harpoon, Mamal, Moby, Shark, Sperm	110	Total
0	Illegible	27	Different Responses
0	Blank		
239	Total		
37	Different Responses		
WHISKEY		WHISKEY	
54	Drink	28	Drink
46	Drunk	16	Drunk
12	Bottle, Sour	8	Sour
11	Liquor	7	Liquor
8	Bourbon	5	Beer, Bottle
7	Beer, Good	4	Alcohol
6	Alcohol, Strong	3	Bad, Bourbon, Party
5	Rum	2	Bitter, Booze, Good, Smell
4	Gin	0	Illegible
3	Booze, Evil, Wine	0	Blank
2	Bad, Inebriation, Scotch, Ugh	110	Total
1	Illegible	34	Different Responses
0	Blank		
239	Total		
62	Different Responses		

TABLE C-1 Continued

Male (N=240)

WIDOW

29 Woman
28 Death
18 Black
16 Husband
13 Widower
12 Old
11 Dead
10 Spider
7 Alone
6 Glass, Lady, Man
4 Lonely, Poor, Sad, Sorrow
3 Grandmother, House, Married, Mother, Orphan, See, Wife
2 Ledge, Money, Pane, Unhappy, Walk
0 Illegible
0 Blank
239 Total
58 Different Responses

WINDOW

60 Glass
21 Open
19 Air
12 Light, Pane
11 Door
7 Shade, View
6 Room, Sill
5 Clear, Look, See
4 Breeze, Curtain, Outside, Sash
3 Blinds, Frame, Out, Pain, Screen
2 Close, Curtains, Sky
0 Illegible
0 Blank
240 Total
52 Different Responses

Females (N=110)

WIDOW

15 Death
14 Black
11 Woman
8 Widower
6 Dead
5 Husband, Sad, Sorrow
3 Lonely, Mother, Spider, Wife
2 Alone, Lady, Man, Poor, Saddness
0 Illegible
0 Blank
110 Total
36 Different Responses

WINDOW

12 Open
11 Air
10 Door, Glass
9 Light
7 Pane, View
5 Sill
4 Curtain
3 Outside
2 Scenery, Shade, Sky
0 Illegible
0 Blank
110 Total
39 Different Responses

TABLE C-1 Continued

Male (N=240)		Females (N=110)	
WOMAN		**WOMAN**	
148	Man	77	Man
22	Girl	5	Girl
13	Sex	4	Female, Mother
10	Love	3	Lady
6	Fun	2	Child, Feminine
4	Beauty, Pretty	0	Illegible
3	Dress, Nice	0	Blank
2	Face, Female, Mother, Wife	110	Total
0	Illegible	20	Different Responses
0	Blank		
240	Total		
32	Different Responses		
WOOL		**WOOL**	
47	Sheep	17	Sweater, Warm
45	Sweater	13	Skirt
25	Lamb	10	Suit
18	Warm	8	Dress
15	Cotton	7	Sheep
13	Coat	5	Cotton
9	Suit	4	Hot
7	Hot	3	Clothes, Scratchy, Winter
5	Cloth	2	Cloth, Coat, Knit, Soft
4	Scratchy	0	Illegible
3	Clothes, Skirt, Soft	0	Blank
2	Clothing, Heavy, Scratch, Socks, Wear, Winter, Wolf, Worm	110	Total
1	Illegible	27	Different Responses
0	Blank		
240	Total		
47	Different Responses		
WORKER		**WORKER**	
32	Labor	17	Labor
28	Laborer	12	Hard
26	Hard	9	Laborer

TABLE C-1 Continued

Males (N=240)		Females (N=110)	
14	Man	4	Church, Factory, Job, Work
10	Sweat, Work	3	Employee, Man, Social
9	Job	2	Busy, Fast, Manual, Slave, Sweat, Tired
6	Factory	0	Illegible
5	Union	0	Blank
4	Money, Pay	110	Total
3	Dirty, Employee, Helper, Slave	51	Different Responses
2	Building, Construction, Employer, Lazy, Poor, Shovel, Social, Wage		
0	Illegible		
2	Blank		
240	Total		
85	Different Responses		
WORM		WORM	
36	Fish	17	Crawl
18	Ground, Snake	10	Fish
14	Crawl	9	Slimy
13	Earth	7	Ground
10	Bird, Fishing	6	Fishing
9	Bait, Dirt	5	Apple, Snake
8	Apple, Slimy	3	Hole
5	Small	2	Bird, Brown, Dirt, Earth, Pink, Slime, Small, Wiggle
4	Brown, Squirm, Turn	1	Illegible
3	Animal, Insect, Long, Slime, Turns, Wiggle	1	Blank
2	Biology, Hole, Hook, Ring, Snail	110	Total
1	Illegible	46	Different Responses
3	Blank		
240	Total		
64	Different Responses		
YOLK		YOLK	
152	Egg	83	Egg
14	Ox, Oxen, White	6	Yellow
10	Yellow	3	Ox, White
2	Chicken, Heavy, Work	2	Dress, Oxen
0	Illegible	0	Illegible
3	Blank	0	Blank
240	Total	110	Total
35	Different Responses	17	Different Responses

APPENDIX D

NOUN ASSOCIATION NORMS FOR 40 WORDS

Noun Association

The Noun Association norms were gathered from incoming freshmen during orientation week in September, 1965 at Vanderbilt University. The 240 words were divided into three groups of 80 and presented to three separate groups of students. The words were printed in a single column in a mimeographed booklet which also contained material for the Adjective Association, Frequency of Usage and Evaluation tasks. The three groups were each composed of 280 students (200 males and 80 females).

Each stimulus word was followed by a horizontal line on which the student was to write his association. The instructions were similar to those for Free Association except that they limited the subject to Noun responses. The following excerpts are taken from the instructions printed in the booklet:

> "When the instructor tells you to open this booklet, you will find the first part consists of a list of 80 words. You are to write next to each word the first noun that it makes you think of. It doesn't make any difference what noun you write as long as the word on the paper makes you think of it. There are no right or wrong answers. All of you are familiar with the definition of a noun, so there is no need to go into detail. We want to stress that this is not a study of grammar, and not a test of the size of your vocabulary or of your cleverness. We are interested in learning about the structure of word relationships. The word we want is simply the first noun that comes to mind when you read the word in the list.

For example, suppose that COW is one of the words. In the list it will have a line beside it. Write down the first noun that COW makes you think of on the line next to COW. For example, COW might lead to HORSE, or MILK, or HORN, or to some other noun. Whatever noun comes to mind, record it on the line next to COW.

Do the same thing for each word in the list. Print the word clearly; do not write it. Do your best to spell the noun correctly."

The students were asked to work quickly down the list, printing only one word on each line and not skipping any words. They were allowed 15 minutes to complete the task.

In each of the three groups one half the students received booklets in which the Noun Association task was the first in the booklet. For the other half the Adjective Association task preceded the Noun Association task. For this second half, the Noun instructions to the subject were a brief statement that the task was the same as that he had just finished except he was to supply Nouns rather than Adjectives.

Each of the 240 words served as a stimulus in noun association for 280 students. Response hierarchies for 40 of these words are contained in Table D-1. These words are the same as those in Appendices E and F. They represent the extreme ends of the JM and DV scores, as described in Appendix F. The hierarchies are arranged alphabetically by stimulus word. Hierarchies for males and females are listed in parallel for ease of comparison and for ease of combining, if desired. "Single" responses, that is, associations given by only one subject, are not listed. The number of single responses given to a particular stimulus word can be calculated by counting the number of different responses listed and subtracting from "Different Responses", since this category has included singles in its tally.

This sample of response hierarchies conveys the general features common to all of the words.

Space and cost limitations prohibit a more complete listing of the Noun Association norms.

TABLE D-1

NOUN ASSOCIATION NORMS FOR 40 WORDS

Males (N=200)	Females (N=80)
ASH	ASH
49 Tray	21 Tray
33 Fire	19 Fire
29 Cigarette	14 Cigarette
18 Can	6 Can
13 Tree	4 Tree
9 Smoke	2 Fireplace
8 Wood	0 Illegible
7 Cigar	0 Blank
3 Ashtray	80 Total
2 Burn, Cigarett, Cigarrettes, Cigerette, Dirt, Wednesday	20 Different Responses
0 Illegible	
0 Blank	
200 Total	
34 Different Responses	
AUTOMOBILE	AUTOMOBILE
114 Car	47 Car
10 Tire	3 Crash, Street, Wreck
9 Wreck	2 Accident, Bus, Drive, Road, Travel, Truck
5 Transportation, Wheels	
4 Accident, Road	0 Illegible
3 Driver, Street, Truck	0 Blank
2 Corvette, Drive, Highway, Money, Oxen, Speed, Wheel	80 Total
	22 Different Responses
0 Illegible	
0 Blank	
200 Total	
43 Different Responses	
BANDIT	BANDIT
56 Thief	20 Thief
35 Robber	19 Robber
17 Gun, Outlaw	6 Mask
12 Crook	4 Gun
10 Mask	3 Cowboy, Outlaw

TABLE D-1 Continued

Males (N=200)		Females (N=80)	
BANDIT (cont.)		BANDIT (cont.)	
4	Cowboy	2	Hold Up, Robbery, Theif
3	Criminal, Gangster, Holdup, Mexican, Robbery	0	Illegible
2	Money, Police, Sheriff, Steal	0	Blank
0	Illegible	80	Total
0	Blank	28	Different Responses
200	Total		
42	Different Responses		
BANKER		BANKER	
95	Money	27	Money
18	Bank	12	Bank
15	Teller	10	Teller
14	Lawyer	5	Man
9	Man	4	Lawyer
5	Clerk	3	Father
3	Businessman, Financier, Office, Trust	2	Business
2	Baker, Daughter, Executive, Rich, Worker	0	Illegible
0	Illegible	0	Blank
0	Blank	80	Total
200	Total	24	Different Responses
37	Different Responses		
BEE		BEE	
52	Honey	22	Honey
38	Hive, Sting	18	Sting
12	Stinger	12	Hive
9	Wasp	4	Stinger
8	Insect	3	Flower, Insect
7	Flower	2	Bird, Clover, Wasp
3	Bird, Buzz, Fly, Line	0	Illegible
2	Birds, Bonnet, Nest, Queen, Tree	0	Blank
0	Illegible	80	Total
0	Blank	21	Different Responses
200	Total		
30	Different Responses		

TABLE D-1 Continued

Males (N=200)

BEGGAR

32 Thief
22 Poor
16 Bum
13 Money
10 Man
9 Pauper
6 Cup, Rags
3 Hobo, Loafer, Poverty
Ragged, Theif, Tramp
2 Alms, Clothes, Derelict, Dirt,
Mendicant, Street, Vagrant
0 Illegible
1 Blank
200 Total
74 Different Responses

BOWL

35 Cereal
23 Soup
17 Ball
13 Dish
11 Spoon
8 Cup, Sugar
7 Fruit, Pins
6 Plate
5 Alley, Salad
4 Fish
3 Finger, Football, Jar
2 Game, Milk, Pin, Saucer
0 Illegible
0 Blank
200 Total
54 Different Responses

BROTHER

138 Sister
12 Boy
10 Friend

Females (N=80)

BEGGAR

10 Money
7 Man, Rags, Thief
6 Poverty
4 Bum
3 Pauper
2 Benefactor, Borrower, Bread,
Mendicant, Poor, Poor Man,
Street
0 Illegible
0 Blank
80 Total
36 Different Responses

BOWL

13 Cereal
10 Dish
7 Soup, Spoon
5 Ball, Fruit
3 Alley
2 Cup, Game, Plate, Saucer,
Sugar
0 Illegible
0 Blank
80 Total
32 Different Responses

BROTHER

51 Sister
5 Friend
2 Boy, Jimmy

TABLE D-1 Continued

Males (N=200)	Females (N=80)
BROTHER (cont.)	BROTHER (cont.)
5 Family 2 Father, Football, Fraternity, Relative 0 Illegible 0 Blank 200 Total 35 Different Responses	0 Illegible 0 Blank 80 Total 24 Different Responses
CAR	CAR
25 Automobile 15 Truck 12 Transportation 10 Wax 9 Auto 8 Bus, Driver 7 Motor, Tire, Wheel 6 Road 5 Door, Train, Wheels 4 Engine, Ford, Garage 3 Boat, Speed, Street, Wreck 2 Accident, Chevy, Date, Gas Window 0 Illegible 0 Blank 200 Total 63 Different Responses	9 Automobile 5 Gas, Motor, Truck 3 Auto, Bus, Seat 2 Driver, Garage, Tire, Train, Transportation, Travel, Wax, Wheel 0 Illegible 0 Blank 80 Total 46 Different Responses
CASTLE	CASTLE
31 Moat 25 Knight 13 King 11 Stone 8 House 7 Mansion, Rock 6 Tower 5 England, Hill, Home, Stones 4 Clouds, Fort, Sand, Wall 3 Palace, Sky, Spain, Turret 2 Building, Dungeon, Fortress	9 King 7 Moat 5 House, Sand, Spain 4 Mansion 3 Princess, Tower 2 England, Knight, Knights, Palace, Sky, Stone 0 Illegible 0 Blank 80 Total 41 Different Responses

TABLE D-1 Continued

Males (N=200)	Females (N=80)
CASTLE (cont.)	
2 Giant, Prince, Walls	
0 Illegible	
0 Blank	
200 Total	
58 Different Responses	
CAT	CAT
159 Dog	67 Dog
7 Fur, Mouse	2 Mouse
5 Kitten	0 Illegible
2 Mice, Tail	0 Blank
0 Illegible	80 Total
0 Blank	13 Different Responses
200 Total	
24 Different Responses	
CHEESE	CHEESE
35 Mouse	15 Milk
34 Milk	12 Mouse
24 Cake	9 Cake
13 Crackers	6 Crackers
10 Food	5 Bread, Mice
8 Holes	4 Sandwich
7 Sandwich	3 Cracker
4 Bread, Butter, Cow, Cracker, Mice, Rat, Swiss	2 Cow, Meat
3 Ham	0 Illegible
2 Camera, Cloth, Cottage, Mold, Smile	0 Blank
0 Illegible	80 Total
1 Blank	27 Different Responses
200 Total	
47 Different Responses	

TABLE D-1 Continued

Males (N=200)	Females (N=80)
DOCTOR	DOCTOR
42 Nurse	31 Nurse
37 Lawyer	8 Lawyer
28 Medicine	7 Medicine
14 Physician	6 Man
11 Patient	3 Father, Health, Office, Physician
8 Man	2 Patient, Sickness
4 Healer, Sickness	0 Illegible
3 Hospital, Illness, Office	0 Blank
2 Cure, Father, Friend, Health, Professional, Surgeon, Witch	80 Total
0 Illegible	22 Different Responses
0 Blank	
200 Total	
47 Different Responses	
DOG	DOG
119 Cat	52 Cat
12 Pet	4 Friend, Pet
8 Friend	2 Beagle, Collie
5 Animal	0 Illegible
4 Bark	0 Blank
3 House, Leash	80 Total
2 Bite, Bone Catcher, Cocker, Fleas, Puppy	21 Different Responses
0 Illegible	
1 Blank	
200 Total	
46 Different Responses	
DUCK	DUCK
28 Goose	10 Goose, Pond, Water
17 Water	8 Bill
15 Hunt	6 Lake, Swan
14 Bird	4 Bird
10 Hunting, Lake	3 Quack
9 Pond	2 Feather
8 Feathers, Mallard	0 Illegible
7 Blind	0 Blank
6 Quack	80 Total
5 Bill	30 Different Responses

TABLE D-1 Continued

Males (N=200)	Females (N=80)
DUCK (cont.)	
4 Chicken, Feather, Hunter	
3 Food, Geese	
2 Feet, Fowl, Gun, Shotgun Soup, Swim, Walk, Wings	
0 Illegible	
0 Blank	
200 Total	
54 Different Responses	
DUST	DUST
89 Dirt	30 Dirt
10 Ashes	5 Ashes
7 Cloth, Man	4 Mop
5 Bowl	3 Earth, Rag, Smoke
4 Death, Ground	2 Ash, Cloth
3 Cloud, Dawn, Dirty, Earth, Mop, Road, Star, Table	1 Illegible
2 Ash, Cough, Floor, Rag, Sand Smoke, Storm, Water, Wind	0 Blank
0 Illegible	80 Total
0 Blank	35 Different Responses
200 Total	
56 Different Responses	
GIN	GIN
26 Whiskey	21 Tonic
23 Tonic	10 Whiskey
22 Vodka	9 Vodka
20 Drink	8 Drink
15 Liquor	6 Liquor
11 Rummy	4 Bottle, Rum
10 Cotton	3 Cotton
9 Bottle	2 Alcohol, Beer, Bourbon Rummy
7 Alcohol	0 Illegible
6 Rum	0 Blank
4 Drunk, Whisky	80 Total
3 Beer, Cotten, Glass	19 Different Responses
2 Ale, Bourbon, Cards, Martini, Mill, Scotch	

TABLE D-1 Continued

Males (N=200)	Females (N=80)
DUCK (cont.) 4 Chicken, Feather, Hunter 3 Food, Geese 2 Feet, Fowl, Gun, Shotgun Soup, Swim, Walk, Wings 0 Illegible 0 Blank 200 Total 54 Different Responses	
DUST 89 Dirt 10 Ashes 7 Cloth, Man 5 Bowl 4 Death, Ground 3 Cloud, Dawn, Dirty, Earth, Mop, Road, Star, Table 2 Ash, Cough, Floor, Rag, Sand Smoke, Storm, Water, Wind 0 Illegible 0 Blank 200 Total 56 Different Responses	DUST 30 Dirt 5 Ashes 4 Mop 3 Earth, Rag, Smoke 2 Ash, Cloth 1 Illegible 0 Blank 80 Total 35 Different Responses
GIN 26 Whiskey 23 Tonic 22 Vodka 20 Drink 15 Liquor 11 Rummy 10 Cotton 9 Bottle 7 Alcohol 6 Rum 4 Drunk, Whisky 3 Beer, Cotten, Glass 2 Ale, Bourbon, Cards, Martini, Mill, Scotch	GIN 21 Tonic 10 Whiskey 9 Vodka 8 Drink 6 Liquor 4 Bottle, Rum 3 Cotton 2 Alcohol, Beer, Bourbon Rummy 0 Illegible 0 Blank 80 Total 19 Different Responses

TABLE D-1 Continued

Males (N=200)	Females (N=80)
GIN (cont.)	
0 Illegible	
0 Blank	
200 Total	
43 Different Responses	
GOOSE	GOOSE
40 Duck	18 Gander
35 Gander	13 Duck
18 Egg	8 Egg
14 Bird	5 Feathers
13 Neck	4 Feather
6 Feathers	3 Mother
4 Bill, Geese, Hunting	2 Bird, Farm, Noise
3 Down, Farm, Feather, Hunt	0 Illegible
2 Animal, Chicken, Flesh, Food, Girl, Liver, Mother	0 Blank
0 Illegible	80 Total
0 Blank	32 Different Responses
200 Total	
56 Different Responses	
GOVERNOR	GOVERNOR
54 State	37 State
16 Mansion	8 Mansion
11 Man	5 Mayor
10 Mayor	4 Man, Senator
8 Senator	2 Government, Leader, Politician
7 Capitol, Leader, President	0 Illegible
6 Office, Official	0 Blank
5 Law, Politician, Politics	80 Total
4 Government, Power, Ruler	24 Different Responses
3 Clement	
2 Capital, General, Kentucky, Legislature, Money, Person, Wallace	
0 Illegible	
0 Blank	
200 Total	
48 Different Responses	

TABLE D-1 Continued

Males (N=200)	Females (N-80)
GUN	**GUN**
34 Rifle	12 Bullet
21 Pistol	10 Holster, Rifle
20 Bullet	5 Shot
11 Barrel	4 Cowboy, Pistol
9 Weapon	3 Death, Hunt, Murder
8 Shot	2 Policeman
6 Shoot	0 Illegible
5 Rack, Trigger	0 Blank
4 Hunt, Shotgun	80 Total
3 Bullets, Cannon, Death, Knife, Smoke, War	34 Different Responses
2 Ammunition, Army, Barrell, Fight, Kill, Killer, Man, Point, Sheep, Target	
0 Illegible	
0 Blank	
200 Total	
62 Different Responses	
HONEY	**HONEY**
94 Bee	38 Bee
12 Bees	9 Bees
11 Girl, Sugar	5 Syrup
7 Milk, Sweet, Syrup	4 Sugar
5 Comb	3 Milk
4 Bear, Dew, Jar, Sweetness	2 Biscuit, Bread, Jar
3 Toast	0 Illegible
2 Food	0 Blank
0 Illegible	80 Total
0 Blank	23 Different Responses
200 Total	
39 Different Responses	
HUT	**HUT**
40 House	14 Shack
37 Shack	10 House
14 Grass	6 Cabin, Straw
13 Cabin	4 Grass
10 Native	3 Home, Island, Native

TABLE D-1 Continued

Males (N=200)		Females (N=80)	
HUT (cont.)		HUT (cont.)	
7	Jungle	2	Cottage, Forest, Hawaii, Tent, Thatch, Village
5	Island, Mud	0	Illegible
3	Bamboo, Food, Hermit, Home, Hovel, Poverty, Straw, Village	0	Blank
2	Clay, Cottage, People, Shanty Tent, Weeds	80	Total
0	Illegible	33	Different Responses
0	Blank		
200	Total		
55	Different Responses		
INK		INK	
99	Pen	41	Pen
16	Blot	6	Bottle, Stain
14	Bottle	4	Well
13	Well	3	Black, Pencil, Spot
9	Spot, Stain	2	Writing
6	Blotter	0	Illegible
5	Paper, Write	0	Blank
4	Black	80	Total
3	Writing	20	Different Responses
2	Liquid, Pencil		
0	Illegible		
0	Blank		
200	Total		
26	Different Responses		
JAIL		JAIL	
43	Bars	29	Bars
24	Prison	12	Prison
23	Cell	7	Cell, Prisoner
14	House	6	House
10	Police	4	Key
9	Bird	3	Bird
7	Prisoner	2	Police
6	Pokey	0	Illegible
5	Criminal	0	Blank
3	Bail, Bar, Crime	80	Total
2	Closet, Door, Key, Law	18	Different Responses

TABLE D-1 Continued

Males (N=200)	Females (N=80)
JAIL (cont.)	
2 Prisoners, Sentence	
0 Illegible	
0 Blank	
200 Total	
56 Different Responses	
KING	KING
139 Queen	67 Queen
6 Crown	3 Crown
5 Ruler	0 Illegible
4 Castle, Throne	0 Blank
3 Power	80 Total
2 Corn, Country, Kingdom, Kong, Reign	12 Different Responses
1 Illegible	
0 Blank	
200 Total	
39 Different Responses	
LION	LION
67 Tiger	33 Tiger
13 Animal	6 Mane
12 King	5 Den, King
10 Cat	3 Animal, Cage, Cub, Jungle
9 Mane	2 Africa, Cat, Mouse, Sheep
7 Jungle	0 Illegible
5 Den, Hunter, Sheep	0 Blank
3 Cage, Cub, Lamb, Lioness, Mouse, Teeth, Zoo	80 Total
2 Beast, Claws, Male, Roar, Sleep	23 Different Responses
0 Illegible	
1 Blank	
200 Total	
56 Different Responses	

TABLE D-1 Continued

Males (N=200)		Females (N=80)	
MOUSE		MOUSE	
64	Rat	24	Rat
52	Cat	14	Cat
21	Trap	10	Trap
13	Hole	7	Cheese
7	Cheese, House	5	Hole
3	Mice, Rodent	3	Tail
2	Elephant, Lion	2	Fur, Mice
1	Illegible	0	Illegible
0	Blank	0	Blank
200	Total	80	Total
35	Different Responses	21	Different Responses
OCEAN		OCEAN	
98	Sea	39	Sea
30	Water	7	Water
8	Fish	5	Waves
6	Lake, Salt, Waves	3	Lake, Salt, Ship, Wave
4	Liner, Wave	2	River, Sky
3	Beach, River, Sand	0	Illegible
2	Atlantic, Sky, Travel	0	Blank
0	Illegible	80	Total
0	Blank	22	Different Responses
200	Blank		
37	Different Responses		
PEN		PEN	
119	Pencil	49	Pencil
49	Ink	21	Ink
9	Paper	2	Letter, Point
4	Letter	0	Illegible
3	Name	0	Blank
2	Ballpoint	80	Total
0	Illegible	10	Different Responses
0	Blank		
200	Total		
20	Different Responses		

TABLE D-1 Continued

Males (N=200)		Females (N=80)	
PHYSICIAN		**PHYSICIAN**	
150	Doctor	47	Doctor
6	Medicine	5	Father
4	Hospital	4	Hospital
3	Lawyer, Office	3	Medicine, Nurse
2	Father, Health, Man Nurse, Patient	0	Illegible
0	Illegible	0	Blank
0	Blank	80	Total
200	Total	23	Different Responses
34	Different Responses		
PRISON		**PRISON**	
62	Jail	18	Jail
29	Cell	17	Bars
24	Bars	10	Cell
8	Bar, Walls	2	Bar, Criminal, Prisoner
6	Crime	0	Illegible
5	Convict, Inmate, Prisoner	0	Blank
3	Camp, Guard, Inmates, Men, Wall	80	Total
2	Confinement, Criminal, Prisoners Sentence, Warden	35	Different Responses
0	Illegible		
0	Blank		
200	Total		
42	Different Responses		
SEA		**SEA**	
58	Ocean	31	Ocean
36	Water	15	Water
16	Waves	6	Shore
11	Ship	4	Waves
7	Fish, Shore	3	Fish, Wave
6	Boat	2	Foam, Sand, Shell
5	Wave	0	Illegible
4	Beach	0	Blank
3	Horse, Salt	80	Total
2	Blue, Clouds, Lake, Life, Storm	21	Different Responses

TABLE D-1 Continued

Males (N=200)		Females (N=80)	
SEA (cont.)			
0	Illegible		
0	Blank		
200	Total		
50	Different Responses		
SOAP		**SOAP**	
53	Water	24	Water
16	Shower	9	Dish
10	Dish, Towel	7	Bath, Cleanliness, Towel
9	Bath, Suds	4	Suds
8	Wash	2	Cloth, Face, Powder, Shower, Wash Cloth, Washcloth, Washing
7	Bar, Clean	0	Illegible
6	Cleanliness	0	Blank
5	Lather	80	Total
4	Cloth, Washcloth	21	Different Responses
3	Box, Bubbles, Smell		
2	Bathe, Cleaner, Dial, Face, Hands, Opera, Rag, Toothpaste, Washing		
0	Illegible		
0	Blank		
200	Total		
50	Different Responses		
SPIDER		**SPIDER**	
109	Web	49	Web
21	Insect	5	Bug
11	Bug	4	Legs
8	Fly	2	Fear, Fly, Insect Snake, Wall
6	Legs	0	Illegible
3	Ant, Bite, Sting, Webb	0	Blank
2	Black Widow, Leg, Silk, Wed	80	Total
0	Illegible	20	Different Responses
0	Blank		
200	Total		
38	Different Responses		

TABLE D-1 Continued

Males (N=200)	Females (N=80)
STEP	STEP
52 Stairs 18 Ladder 16 Stair 14 Walk 13 Foot 8 House, Porch 5 Fall, Stairway, Stone 3 Door, Father, Feet 2 Concrete, Floor, Hall, Rail, Stool, Wood 0 Illegible 0 Blank 200 Total 54 Different Responses	23 Stairs 9 Stair 7 Ladder 6 Foot 5 Walk 4 House 2 Building, Cement, Door, Pace, Porch, Staircase, Stairway, Stone 0 Illegible 0 Blank 80 Total 24 Different Responses
THIEF	THIEF
33 Robber 22 Crook 15 Money 12 Police 10 Burglar 9 Jail 7 Man, Steal 6 Jewels 5 Robbery 3 Crime, Criminal, Mask, Window 2 Bandit, Bum, Burgler, Cop, Hoodlum, Jewel, Knife, Law, Loot, Night, Sneak, Theft 0 Illegible 0 Blank 200 Total 64 Different Responses	21 Robber 6 Mask, Robbery 5 Money 4 Gun, Man 3 Burglar 2 Bandit, Burgler, Jewelry, Jewels, Store 0 Illegible 0 Blank 80 Total 33 Different Responses
TIGER	TIGER
62 Lion 20 Cat 18 Stripes	23 Lion 11 Jungle 7 Stripes, Tank

TABLE D-1 Continued

Males (N=200)	Females (N-80)
TIGER (cont.)	TIGER (cont.)
14 Jungle	6 Cat
10 Animal	3 Gasoline, Stripe
6 Tank	2 Bear, Lady
4 Gasoline, Stripe	0 Illegible
3 Africa, Elephant, Lady, Tail	0 Blank
2 Claws, Danger, Gun, India, Poem, Strips	80 Total
0 Illegible	25 Different Responses
0 Blank	
200 Total	
56 Different Responses	
TRIGGER	TRIGGER
165 Gun	73 Gun
11 Pistol	2 Pistol
4 Finger, Rifle	0 Illegible
3 Bullet	0 Blank
2 Horse	80 Total
0 Illegible	7 Different Responses
0 Blank	
200 Total	
17 Different Responses	
WATER	WATER
32 Lake	9 Lake
14 Drink	8 Glass
10 Hole	6 Drink
9 Bottle, Sea	5 Ocean, Stream
8 Thirst	4 Fish, River
7 Boat, Liquid, Ocean	3 Hole, Liquid, Sea,Thirst
6 Glass	2 Boat, Bucket, Milk, Ship, Ski
5 Bucket, Well	0 Illegible
4 Fish	0 Blank
3 Cup, Hose, Pool, River, Stream Wet	80 Total
2 Buffalo, Creek, Fountain, Horse, Ice, Pail, Pipe, Pond	33 Different Responses

TABLE D-1 Continued

Males (N=200)	Females (N=80)
WATER (cont.)	
0 Illegible	
1 Blank	
200 Total	
69 Different Responses	
WIDOW	WIDOW
33 Death, Husband	15 Death, Woman
26 Woman	11 Husband
14 Widower	5 Widower
7 Lady, Wife	3 Door, Spider, Wife
5 Man, Mother, Orphan	2 Black, Lady, Mourning, Sadness
4 Black, Children, Grief	0 Illegible
3 Glass, Spider	0 Blank
2 Grandmother, Lace, Loneliness, Marriage, Pane	80 Total
0 Illegible	28 Different Responses
0 Blank	
200 Total	
56 Different Responses	

APPENDIX E

ADJECTIVE ASSOCIATION NORMS FOR 40 WORDS

Adjective Association

The Adjective Association norms were also gathered from incoming freshmen during orientation week in September, 1965 at Vanderbilt University. The 240 stimulus words were divided into three groups of 80 and presented to three groups of students. The words were printed in a single column in a mimeographed booklet which also contained material for the Noun Association, Frequency of Usage and Evaluation tasks. The three groups were each composed of 280 students (200 males and 80 females).

Each stimulus word was followed by a horizontal line on which the student was to write his association. The instructions were similar to those for Noun Association except that they limited the subject to Adjective responses. The following paragraphs are taken from the instructions printed in the booklet:

> "When the instructor tells you to open this booklet, you will find the first part consists of a list of 80 words. You are to write next to each word the first adjective that it makes you think of. It doesn't make any difference what adjective you write as long as the word on the paper makes you think of it. There are no right or wrong answers. All of you are familiar with the definition of an adjective, so there is no need to go into detail. We want to stress that this is not a study of grammar, and not a test of the size of your vocabulary or of your cleverness. We are interested in learning about the structure of word relationships. The words we want are simply the first adjective that comes to

mind when you read the word in the list. It is not necessary to supply a different adjective for each word in the list. If an adjective seems appropriate for more than one list word, put it down for each of them.

For example, suppose that COW is one of the words. In the list it will have a line beside it. Write down the first adjective that COW makes you think of on the line next to COW. For example, COW might lead to BROWN, or SPOTTED, or PATIENT, or to some other adjective. Whatever adjective comes to mind, record it on the line next to COW.

Do the same thing for each word in the list. Print the word clearly; do not write it. Do your best to spell the adjective correctly."

The students were asked to work quickly down the list, printing only one word on each line and not skipping any words. They were allowed 15 minutes to complete the task.

In each of the three groups one half the students received booklets in which the Adjective Association task was the first in the booklet. For the other half the Noun Association task preceded the Adjective Association task. For this second half, the Adjective instructions to the subject were a brief statement that the task was the same as that he had just finished except he was to supply Adjectives rather than Nouns.

Each of the 240 words served as a stimulus in adjective association for 280 students. The response hierarchies for 40 of these words are contained in Table E-1. These words are the same as those in Appendices D and F. They represent the extreme ends of the JM and DV scores, as described in Appendix F. The hierarchies are arranged alphabetically by stimulus word. Hierarchies for males and females are listed in parallel for ease of comparison and for ease of combining, if desired. "Single" responses, that is, associations given by only one subject, are not listed. The number of single responses given to a particular stimulus word can be calculated by counting the number of different responses listed and subtracting from "Different Responses", since this category has included singles in its tally.

As in the case of the controlled association-noun task, space and cost limitations prohibit a more complete listing of the Adjective Association norms.

TABLE E-1

ADJECTIVE ASSOCIATION NORMS FOR 40 WORDS

Males (N=200)		Females (N=80)	
ASH		ASH	
21	Gray	13	Black
19	Black	12	Gray
18	Hot	10	Grey
15	Dirty	8	Dirty
12	Grey	4	Burnt, Cigarette
11	Cigarette	3	Burning, Dusty, Smoky
7	White	2	Dead, Sooty
6	Burnt	0	Illegible
5	Burning, Dead, Light, Long	0	Blank
3	Burned, Cold, Dusty, Fire, Wood	80	Total
2	Brown, Cigar, Dirt, Dry, Smoke Smokey, Smoky, Soft, Sooty, Wooden	27	Different Responses
0	Illegible		
0	Blank		
200	Total		
63	Different Responses		
AUTOMOBILE		AUTOMOBILE	
77	Fast	25	Fast
15	New	7	New
5	Dangerous, Sharp	4	Blue
4	Old, Powerful	3	Red
3	Blue, Convenient, Moving, Red Shiny, Tough	2	Big, Convenient, Moving, Old, Powerful, Pretty, Shiney, Sleek, Swift, Wrecked, Yellow
2	Beautiful, Big, Car, Fun, Large, Mobile, Necessary, Nice, Sleek, Small, Speedy	0	Illegible
0	Illegible	0	Blank
0	Blank	80	Total
200	Total	34	Different Responses
73	Different Responses		

TABLE E-1 Continued

Males (N=200)	Females (N=80)
BANDIT	BANDIT
57 Bad	29 Bad
17 Masked	5 Masked, Mean
14 Mean	3 Black, Evil, Rough
9 Evil	2 Armed, Exciting, Sneaky
7 Black, Dangerous	0 Illegible
6 Dirty	0 Blank
4 Notorious	80 Total
3 Armed, Ugly	35 Different Responses
2 Crooked, Desperate, Dishonest, Heinous, Illegal, Red, Sly, Terrible, Wrong	
0 Illegible	
0 Blank	
200 Total	
74 Different Responses	
BANKER	BANKER
78 Rich	21 Rich
12 Honest	4 Distinguished, Stuffy
9 Wealthy	3 Trustworthy, Wealthy
6 Smart	2 Fat, Intelligent, Respectable, Stingy
5 Important, Well Dressed	0 Illegible
3 Big, Fat, Friendly, Intelligent, Money, Poor, Powerful, Trustworthy	0 Blank
2 Good, Neat, Old, Quiet, Responsible, Thrifty, Wall Street	80 Total
0 Illegible	46 Different Responses
1 Blank	
200 Total	
67 Different Responses	
BEE	BEE
30 Buzzing	15 Honey
23 Honey	14 Buzzing
21 Bumble	9 Bumble
14 Busy	6 Busy
12 Stinging	4 Small, Stinging, Yellow
10 Painful	2 Dangerous, Industrious, Nasty, Sweet
9 Yellow	0 Illegible
8 Small	

TABLE E-1 Continued

Males (N=200)	Females (N=80)
BEE (cont.)	BEE (cont.)
4 Dangerous, Hunt, Little, Mean 3 Buzzy, Sting, Sweet 2 Bothersome, Fast, Flying, Furry, Harmful, Humming, Industrious, Irritating, Queen, Sharp, Smart 0 Illegible 1 Blank 200 Total 51 Different Responses	0 Blank 80 Total 27 Different Responses
BEGGAR	BEGGAR
105 Poor 12 Dirty 6 Pitiful 5 Ragged 4 Lazy, Shabby, Unfortunate 3 Needy 2 Filthy, Humble, Indigent, Lonely, Lowly, Old, Sloppy, Ugly, Wretched 0 Illegible 0 Blank 200 Total 56 Different Responses	50 Poor 4 Sad 3 Pitiful, Ragged 2 Humble, Lazy, Needy, Stupid 0 Illegible 0 Blank 80 Total 20 Different Responses
BOWL	BOWL
67 Round 12 Cereal 9 Deep 8 Full 6 Empty 5 Big, Large, Salad, Small, Soup, Sugar 4 Blue 3 Clean, Cotton, Fruit, Fun Shallow 2 China, Football, Glass, Hollow, Orange, Wet, White	29 Round 3 Cereal, Empty, Large, Soup, White 2 Finger, Full, Mixing, Yellow 0 Illegible 0 Blank 80 Total 38 Different Responses

TABLE E-1 Continued

Males (N=200)	Females (N=80)
BOWL (cont.) 0 Illegible 0 Blank 200 Total 59 Different Responses	
BROTHER 34 Big 17 Older 14 Little 10 Younger 6 Friendly 5 Close, Good, Kind, Nice, Tall 4 Helpful, Sister, Smart, Young 3 Great, Small 2 Bothersome, Cool, Cute, Dear, Happy, Intelligent, Loving, Loyal, Mean, My, Strong, Understanding 0 Illegible 0 Blank 200 Total 76 Different Responses	BROTHER 9 Big 8 Older 6 Great, Little 5 Fun 4 Nice 2 Bothersome, Handsome, Helpful, Kind, Loving, Sister, Wonderful 0 Illegible 0 Blank 80 Total 41 Different Responses
CAR 66 Fast 17 New 14 Red 9 Blue 7 Shiny 4 Beautiful, Moving, White 3 Convenient, Sports 2 Big, Black, Clean, Dirty, Mobile, Old, Powerful, Sharp, Sporty, Wax 0 Illegible 0 Blank 200 Total 69 Different Responses	CAR 21 Fast 10 New 5 Blue 4 Moving 3 Red 2 Black, Green, Old, Sports, Sporty 0 Illegible 0 Blank 80 Total 37 Different Responses

TABLE E-1 Continued

Males (N=200)		Females (N=80)	
CASTLE		CASTLE	
24	Old	4	Beautiful, Huge, Large
16	Stone	3	Big, Old, Strong
14	Large	2	Ancient, Grand, Grey, Majestic, Medieval, Stone, Tall
11	High	0	Illegible
9	Gray	0	Blank
8	Big, Grey	80	Total
7	Huge	58	Different Responses
6	Fortified, Haunted		
5	Ancient, Medieval, Strong		
4	Majestic		
3	Towering		
2	Enormous, Fairy, Foreboding, Formidable, Giant, Gloomy, Imposing, Massive, Moated, Rich, Sand, Stony, Tall, White		
0	Illegible		
0	Blank		
200	Total		
70	Different Responses		
CAT		CAT	
55	Black	10	Soft
14	Soft	6	Black
13	Furry	5	Furry, Siamese
8	Mean	3	Persian, White, Yellow
6	Gray, Sly	2	Cuddly, Dog, Tom
5	Brown, Quick	0	Illegible
4	Alley, Independent, Tom, White	0	Blank
3	Dog, Pretty, Quiet	80	Total
2	Agile, Cute, Fat, Feline, Fluffy Playful, Siamese, Sleepy, Small	49	Different Responses
0	Illegible		
0	Blank		
200	Total		
69	Different Responses		

TABLE E-1 Continued

Males (N=200)		Females (N=80)	
CHEESE		CHEESE	
41	Yellow	18	Yellow
25	Swiss	9	Blue
14	Sharp	7	Sharp
10	Green	6	Green
9	Smelly	3	Swiss
8	Blue	2	American, Cheddar, Creamy, Delicious, Holey, Moldy, Orange, Smelly, Tangy, Tart, Tasty
7	Cheddar	0	Illegible
6	Tasty	0	Blank
5	Moldy	80	Total
4	Bitter, Tangy	31	Different Responses
3	Mellow, Strong		
2	American, Crackers, Cream, Delicious, Good, Mild, Milk, Old, Orange, Rotten, Sour, Spoiled		
0	Illegible		
0	Blank		
200	Total		
62	Different Responses		
DOCTOR		DOCTOR	
19	Good	15	Good
16	Patient	8	Intelligent
15	White	6	Kind
14	Smart	4	Understanding
12	Helpful	3	Dedicated, Patient, Smart, White
11	Kind	2	Lawyer, Nice, Overworked, Powerful, Wise
8	Medical	0	Illegible
6	Intelligent, Rich, Wise	0	Blank
4	Clean	80	Total
3	Competent, Excellent, Healing, Help, Learned, Quack, Qualified, Wealthy	38	Different Responses
2	Bad, Educated, Fine, Friendly, Gentle, Healthy, Nice, Quiet		
0	Illegible		
0	Blank		
200	Total		
70	Different Responses		

TABLE E-1 Continued

Males (N=200)	Females (N=80)
DOG 40 Friendly 12 Barking, Brown 9 Mean 7 Small 6 Black 5 Good, Nice, Old 4 Big, Faithful, Spotted 3 Furry, Hairy, Large, Mangy 2 Bad, Bark, Cute, Dumb, Fierce, Great, Happy, Lazy, Loyal, Mad Playful, Shaggy, Smart, Wet 0 Illegible 0 Blank 200 Total 77 Different Responses	DOG 10 Friendly 7 Barking 3 Cute, Lovable, Nice, Playful 2 Black, Dirty, Frisky, Funny, Furry, Hairy, Mean 0 Illegible 0 Blank 80 Total 50 Different Responses
DUCK 33 White 11 Flying 9 Quacking, Wild 8 Dead 6 Mallard, Wet 4 Feathered, Graceful, Tasty, Ugly, Waddling 3 Black, Brown, Large, Noisy, Small, Soft, Yellow 2 Aquatic, Awkward, Cute, Donald, Downy, Fast, Green, Lame, Pretty, Swift, Swimming, Water, Wood, Young 0 Illegible 0 Blank 200 Total 82 Different Responses	DUCK 17 White 7 Yellow 6 Waddling 4 Feathery, Wild 3 Downy, Wet 2 Black, Flying, Noisy, Quacking, Soft, Ugly, Webbed 0 Illegible 0 Blank 80 Total 36 Different Responses
DUST 65 Dirty 14 Dry 11 Brown 8 Filthy	DUST 27 Dirty 8 Brown 3 Gray 2 Cloudy, Dry, Dusty

TABLE E-1 Continued

Males (N=200)	Females (N=80)
DUST (cont.) 6 Thick 5 Irritating 4 Choking, Cloudy, Dirt 3 Hot, Light, Messy, Musty 2 Annoying, Blowing, Bothersome, Choaking, Fine, Settled, Star, Yellow 1 Illegible 0 Blank 200 Total 71 Different Responses	DUST (cont.) 2 Filthy, Fine, Light, Messy, Thick 0 Illegible 0 Blank 80 Total 37 Different Responses
GIN 20 Clear 13 Alcoholic 12 Cotton, Strong 11 Dry 10 Drunk, Good 7 Bad, Bitter 5 Slow 4 Cotten, Hot, Intoxicating, Sloe, White 3 Rummy, Tonic 2 Cheap, Drinking, Hard 1 Illegible 0 Blank 200 Total 80 Different Responses	GIN 8 Cotton, Strong 6 Alcoholic, Clear 5 Drunk 4 Bitter 3 Good, Intoxicating, Smelly 2 Cold, Dry, Straight 0 Illegible 0 Blank 80 Total 40 Different Responses
GOOSE 40 White 9 Silly 8 Mother 7 Cooked, Golden 6 Feathery, Flying 5 Fat, Funny 4 Dumb, Graceful, Honking, Noisy 3 Big, Canadian, Clumsy, Large, Long, Old, Squaking, Stupid	GOOSE 15 White 11 Silly 4 Golden, Noisy, Stupid 3 Feathered, Funny 2 Cute, Dumb, Loud 0 Illegible 0 Blank 80 Total 40 Different Responses

TABLE E-1 Continued

Males (N=200)	Females (N=80)
GOOSE (cont.) 2 Awkward, Beautiful, Blue, Duck, Fast, Gander, Loud, Soft, Ugly, Wild 1 Illegible 0 Blank 200 Total 77 Different Responses	
GOVERNOR 18 Powerful 10 Important 9 Good 8 State 7 Corrupt, Crooked 6 Bad, Political 5 Big 4 Honest, Old, Stately 3 Fat, Honorable, Just, Lieutenant, Rich, Smart, Strong 2 Dignified, Dishonest, Distinguished, Helpful, High, Kind, Politician, Poor, Power, Responsible, Tall, Young 1 Illegible 0 Blank 200 Total 97 Different Responses	GOVERNOR 5 State 4 Corrupt, Elected, Important, Powerful 3 Good 2 Big, Great, Handsome, High, Honest, Honorable, Political, Rich 0 Illegible 0 Blank 80 Total 54 Different Responses
GUN 33 Dangerous 13 Shot 12 Deadly, Loud 8 Black 7 Loaded 6 Powerful 5 Fast 4 Accurate, Clean, Heavy, Short, Small 3 Cold, Hot	GUN 15 Dangerous 5 Loaded 4 Black, Gray, Loud 3 Deadly, Long, Shot, Small 2 Bad, Fast, Fatal, Heavy, Powerful 0 Illegible 0 Blank 80 Total 40 Different Responses

TABLE E-1 Continued

Males (N=200)		Females (N=80)	
GUN (cont.)			
2	Big, Destructive, Fine, Fired, Good, Hard, Hunting, Long, Metal, Noisy, Old, Rusty, Shiny, Shy, Target, Useful		
0	Illegible		
1	Blank		
200	Total		
76	Different Responses		
HONEY		HONEY	
150	Sweet	53	Sweet
8	Golden, Sticky	9	Sticky
5	Bee, Bees	3	Thick
3	Thick	2	Golden, Good, Yellow
2	Flowing, Good, Stickey, Tasty, Yellow	0	Illegible
0	Illegible	0	Blank
0	Blank	80	Total
200	Total	15	Different Responses
22	Different Responses		
HUT		HUT	
61	Small	24	Small
20	Grass	9	Grass
12	Thatched	6	Thatched
11	Dirty	5	Straw
8	Little	4	Wooden
5	Brown, Mud, Native, Shabby, Straw, Thatch, Wooden	3	Little
3	Tiny	2	Cozy, Grassy, Poor, Tiny, Wretched
2	Delapadated, Delapidated, Indian, Lonely, Primitive, Simple	0	Illegible
0	Illegible	0	Blank
0	Blank	80	Total
200	Total	30	Different Responses
57	Different Responses		

TABLE E-1 Continued

Males (N=200)	Females (N=80)
INK	INK
95 Black 53 Blue 7 Messy 5 Dark 4 Spilled 3 India, Spotted, Write 2 Permanent, Red, Stain, Staining, Wet 0 Illegible 0 Blank 200 Total 30 Different Responses	34 Black 27 Blue 3 Washable 2 Permanent 0 Illegible 0 Blank 80 Total 18 Different Responses
JAIL	JAIL
25 Dirty 21 Bad 10 Barred, Small 8 Cold 7 Dark, Locked 6 Dingy, Old 5 City 4 Confined, Cramped, Crowded 3 Confining, County, Strong 2 Bleak, Damp, Dreary, Evil, Good, Horrible, Quiet, Smelly, Striped 2 Illegible 1 Blank 200 Total 78 Different Responses	10 Dirty 5 Cold 4 County, Crowded, Dark, Locked, Small 3 Bad 2 Barred, City, Confining, Dingy, Old 0 Illegible 0 Blank 80 Total 45 Different Responses
KING	KING
23 Powerful 19 Rich 18 Royal 9 Old, Regal 8 Good 7 Stately	11 Regal 9 Powerful 6 Rich 5 Majestic 3 Good, Royal, Ruling, Stately

TABLE E-1 Continued

Males (N=200)

KING (cont.)

5 High, Wise
3 Fat, Omnipotent, Pompous, Wealthy
2 Aristocratic, Benevolent, Big, Gold, Great, Large, Leader, Majestic, Mighty, Power, Purple, Ruler, Ruling, Strong, Tyrannical
0 Illegible
0 Blank
200 Total
83 Different Responses

LION

30 Fierce
21 Ferocious
10 Yellow
8 Mean, Strong
7 Mangy, Roaring
6 Hairy, Tawny
5 Big, Large, Shaggy
4 Dangerous, Sleepy, Tan
3 Brave, Golden, Kingly, Loud, Sleeping
2 Angry, Hungary, King, Lazy, Mighty, Orange, Savage, Sly, Wild
0 Illegible
0 Blank
200 Total
66 Different Responses

MOUSE

49 Small
21 Gray
13 Grey
12 Brown, Quiet
6 Quick, Tiny
5 Dirty, Little, Squeaky

Females (N=80)

KING (cont.)

2 Fat, Kind, Mighty, Queen, Reigning
0 Illegible
0 Blank
80 Total
40 Different Responses

LION

15 Ferocious
12 Fierce
6 Brave
5 Yellow
4 Mean
3 Hungry
2 Angry, Dangerous, Loud, Mangy, Noble, Shaggy, Sleepy, Tame, Tawny
0 Illegible
0 Blank
80 Total
32 Different Responses

MOUSE

11 Small
10 Gray
7 Brown, Grey, Squeaky
4 Cute, Tiny
3 Little
0 Illegible

TABLE E-1 Continued

Males (N=200)

MOUSE (cont.)

4	Fast
3	Mighty, Squeeky, Ugly, White
2	Cat, Field, Furry, Mickey Squeaking, Timid
0	Illegible
0	Blank
200	Total
59	Different Responses

OCEAN

48	Blue
21	Deep
16	Wide
15	Salty
12	Big
11	Wet
9	Vast
8	Large
4	Calm, Green, Huge, Rolling
3	Tremendous
2	Beautiful, Broad, Cold, Dark, Roaring, Rough, Sea
0	Illegible
0	Blank
200	Total
47	Different Responses

PEN

28	Blue
20	Fountain
18	Ink
13	Black, Leaky
9	Writing
8	Messy
7	Ball Point, Sharp
6	Long
5	Inky, Red
4	Pencil
3	Green, Small, Straight, Thin, Useful, Wet

Females (N=80)

MOUSE (cont.)

0	Blank
80	Total
35	Different Responses

OCEAN

25	Blue
9	Wide
4	Deep, Large
3	Big, Huge, Rolling, Vast
2	Atlantic, Endless, Green, Rough, Salty
0	Illegible
0	Blank
80	Total
29	Different Responses

PEN

13	Blue
12	Leaky
10	Ink
9	Fountain
7	Messy
4	Writing
3	Black, Long
2	Ball Point, Dirty, Pointed
0	Illegible
0	Blank
80	Total
24	Different Responses

TABLE E-1 Continued

Males (N=200)		Females (N=80)	
PEN (cont.)			
2	Ballpoint, Big, Pig, Pointed, Used		
0	Illegible		
0	Blank		
200	Total		
53	Different Responses		
PHYSICIAN		**PHYSICIAN**	
25	Helpful	14	Helpful
24	Good	8	Good
17	Kind	6	Kindly
10	Healing	5	Kind, White
6	Medical, Smart	3	Nice, Sick, Smart
5	Doctor, Friendly	2	Dedicated, Gentle, Ill, Intelligent, Medical, Old
4	Trustworthy, White	0	Illegible
3	Clean, Dedicated, Gentle, Intelligent, Kindly, Nice, Sick	0	Blank
2	Benevolent, Capable, Family, Help, Quack, Resident, Rich, Tired, Wealthy, Wise	80	Total
0	Illegible	35	Different Responses
0	Blank		
200	Total		
80	Different Responses		
PRISON		**PRISON**	
25	Dark	14	Dark
17	Bad	4	Bad
14	Dirty	3	Barred, Closed, Confining, Dirty, Gloomy
6	Dank	2	Awful, Cold, Damp, Necessary, Sad, Ugly
5	Grey, State	0	Illegible
4	Cold, Confined, Damp, Dingy, Gray, Old	0	Blank
3	Closed, Evil, Gloomy, Hard, Mean, Sad	80	Total
2	Big, Bleak, Criminal, Dangerous, Dreary, Dull, Enclosed, Harsh, Locked, Lonely, Restrictive, Stone	48	Different Responses
0	Illegible		
0	Blank		
200	Total		
92	Different Responses		

TABLE E-1 Continued

Males (N=200)	Females (N=80)
SEA	**SEA**
42 Blue	22 Blue
19 Calm	9 Green
16 Salty	6 Calm
9 Deep, Rough	4 Rolling, Rough
6 Big, Choppy, Green, Rolling	3 Beautiful, Foamy
5 Angry	2 Billowing, Roaring, Turbulent, Wet
4 Beautiful, Stormy, Vast, Wet, Wide	0 Illegible
3 Cold	0 Blank
2 Huge, Peaceful, Restless, Surging, Turbulant, Water, Wavy, Wild	80 Total
0 Illegible	32 Different Responses
0 Blank	
200 Total	
61 Different Responses	
SOAP	**SOAP**
59 Clean	30 Clean
19 Slippery	7 Slippery, White
16 White	6 Sudsy
7 Cleaning	3 Cleaning, Dial
6 Soft, Wet	2 Cleansing, Face, Lathery
5 Foamy, Sweet	0 Illegible
4 Fragrant, Good, Sudsy	0 Blank
3 Bath, Cleansing, Smooth, Washing, Yellow	80 Total
2 Bubbly, Dirty, Lathery, Slick, Slimy, Smelly, Sticky, Strong	27 Different Responses
0 Illegible	
1 Blank	
200 Total	
57 Different Responses	
SPIDER	**SPIDER**
45 Black	26 Black
17 Ugly	8 Ugly
11 Small	4 Crawling
8 Poisonous	3 Creepy
6 Crawling, Hairy	2 Busy, Frightening, Furry, Hairy, Small, Tiny
4 Creepy, Evil, Harmful	

TABLE E-1 Continued

Males (N=200)		Females (N=80)	
SPIDER (cont.)		SPIDER (cont.)	
3	Bad, Crafty, Dangerous, Fast, Weaving, Web	0	Illegible
2	Big, Creeping, Dirty, Little, Scary, Sly, Tiny	0	Blank
0	Illegible	80	Total
0	Blank	37	Different Responses
200	Total		
85	Different Responses		
STEP		STEP	
34	High	22	High
19	Steep	10	Steep
14	Big	6	Up
12	First	4	First, Long
8	Long	2	Big, Concrete, Gray, Hasty
5	Down, Large	0	Illegible
4	Broken	0	Blank
3	Ascending, Careful, Giant, Low, Short, Stairs, Wooden	80	Total
2	Hard, Lively, Square, Up	35	Different Responses
0	Illegible		
0	Blank		
200	Total		
89	Different Responses		
THIEF		THIEF	
29	Bad	11	Bad
17	Dishonest	7	Sneaky
12	Sly, Sneak	4	Dishonest, Sly
9	Sneaky	3	Black, Poor, Ugly
8	Evil	2	Cruel, Dangerous, Jewel, Scared, Stealthy, Wicked
7	Clever	0	Illegible
6	Stealthy	0	Blank
5	Black, Dark	80	Total
4	Dangerous, Poor	46	Different Responses
3	Dirty, Quick, Smart, Stolen, Stupid		
2	Bearded, Cunning, Lowly, Mean, Old, Running, Sneeky, Stealing		

TABLE E-1 Continued

Males (N=200)	Females (N=80)
THIEF (cont.)	
0 Illegible	
0 Blank	
200 Total	
76 Different Responses	
TIGER	TIGER
43 Striped	22 Striped
21 Fierce	9 Fierce
12 Ferocious	8 Stripped
9 Mean, Stripped, Vicious	4 Ferocious, Yellow
6 Powerful	3 Roaring
5 Dangerous, Growling, Yellow	2 Handsome, Orange, Snarling, Spotted
4 Stripes, Strong, Wild	0 Illegible
3 Bright, Orange, Paper	0 Blank
2 Angry, Fast, Killer, Man Eating, Roaring, Tough	80 Total
0 Illegible	32 Different Responses
0 Blank	
200 Total	
65 Different Responses	
TRIGGER	TRIGGER
25 Hair	7 Dangerous, Gun
12 Dangerous	6 Quick
11 Deadly, Happy, Quick	4 Fast
9 Gun	3 Cold, Deadly, Happy, Loud, Noisy
7 Black	2 Bad, Black, Death, Hard, Heavy, Large, Silver, Small
5 Cold, Steel	0 Illegible
4 Curved, Danger, Fast, Gold	1 Blank
3 Hard, Itchy, Metal, Tight	80 Total
2 Brown, Lethal, Light, Pulled, Rapid, Short, Silver, Small, Soft, Touchy	41 Different Responses
0 Illegible	
0 Blank	
200 Total	
83 Different Responses	

TABLE E-1 Continued

Males (N=200)	Females (N=80)
WATER	**WATER**
47 Wet	23 Wet
34 Cool	17 Clear
28 Clear	10 Cool
23 Cold	7 Blue
21 Blue	4 Cold
4 Hot, Refreshing	3 Deep
3 Thirsty	2 Calm, Smooth
2 Good, Pure, Smooth	0 Illegible
0 Illegible	0 Blank
0 Blank	80 Total
200 Total	20 Different Responses
41 Different Responses	
WIDOW	**WIDOW**
35 Old	20 Sad
24 Sad	17 Black
21 Black	14 Lonely
19 Lonely	9 Old
16 Poor	5 Alone
6 Sorrowful, Unhappy	3 Sorrowful
4 Clear	2 Open
3 Bereaved, Elderly, Grieving	0 Illegible
2 Alone, Dead, Grieved, Hurt, Merry, Mourning, Open, Small, Unfortunate, Young	0 Blank
0 Illegible	80 Total
0 Blank	17 Different Responses
200 Total	
61 Different Responses	

APPENDIX F

COMMON RESPONSES TO PAIRS FOR 20 PAIRS

Common Responses to Pairs

In order to provide some index of similarity between response hierarchies of the two members of a word-pair, a list of the common responses in the two hierarchies was prepared for several pairs. Table F-1 lists the responses common to the two hierarchies of 20 of the 120 word-pairs. The frequency values shown are the combined frequencies of the common response in the hierarchies for the stimulus and response members of the pair. The hierarchies from which the common responses have been drawn are the Free Association norms given in Appendix C. Only the hierarchies for male subjects (N=240) were used.

The 20 word-pairs are the 5 pairs for which the mean JM score was highest, the 5 for which mean JM was lowest, the 5 for which the mean forward DV score was highest and the 5 for which mean forward DV was lowest. The mean JM or DV score for each pair is given in parentheses after the pair.

Space and cost limitations prohibit a more complete listing of common responses. Additional hierarchies may be obtained by comparing hierarchies in the Free Association norms in the manner described above.

TABLE F-1

COMMON RESPONSES TO PAIRS

Joint Meaningfulness	Detection Value (forward)

High Scores

OCEAN - SEA (JM: 8.16)

65	Water
55	Sea
20	Fish
18	Blue
17	Ship
16	Swim
15	Salt
14	Waves
11	Wave
9	Boat, Shore
8	Beach, Deep
7	Sand
6	Surf
5	Roar, Sail, Side
4	Big, Breeze, Food, Saltwater
3	Fun
2	Air, Foam, Huge, Roll, Rough, Salty, Shell, Swimming, Tide
330	Total Responses
32	Different Responses

CAR - AUTOMOBILE (JM: 8.00)

46	Drive
17	Fast
12	Ride
11	Truck
10	Tire
9	Speed
7	Go, Wheels
6	Chevy
5	Ford, New, Run
4	Buick, Gas, Transportation, Wreck
3	Blue, Fun, Gasoline, Tires
2	Color, Convertible, Corvair, Corvett, Driving, GTO, Old
182	Total Responses
27	Different Responses

BEE - HONEY (DV: .88)

34	Heat
6	Wasp
40	Total Responses
2	Different Responses

GUN - TRIGGER (DV: .88)

69	Bullet
43	Shoot
29	Rifle
18	Shot
15	Pistol
7	Bang
181	Total Responses
6	Different Responses

DOCTOR - PHYSICIAN (DV: .82)

50	Nurse
24	Sick
23	Medicine
9	Heal
6	Doc
5	Cure, Father, Hospital, Illness, Pain
3	Patient, Shot
2	Health, Hurt, M.D., Stethoscope, Surgeon
153	Total Responses
17	Different Responses

TABLE F-1 Continued

Joint Meaningfulness

JAIL - PRISON (JM: 7.70)

80 Bars
45 Cell
26 House
15 Bad
14 Prisoner
12 Convict
10 Police
8 Crime
7 Bar, Break, Criminal
6 Confinement, Punishment
5 Sentence
4 Confine, Law
3 Captive, Home, Pen, Punish
2 Cage, Cop, Held, Hell, Sell
278 Total Responses
25 Different Responses

GOOSE - DUCK (JM: 7.64)

67 Water
32 Feathers
29 Bird
27 Gander
25 Feather, Geese
11 Egg
10 Quack
9 Chicken
7 White
6 Animal, Hunt
5 Shoot
4 Bill, Eat, Food, Waddle
3 Dinner, Fowl
2 Tail
283 Total Responses
20 Different Responses

Detection Value

PEN - INK (DV: .82)

66 Write
51 Ink
9 Paper
8 Blue
2 Author
136 Total Responses
5 Different Responses

DOG - CAT (DV: .79)

10 Pet
7 Animal
5 Fur
3 Girl
2 Brown, Rat, Small
31 Total Responses
7 Different Responses

TABLE F-1 Continued

Joint Meaningfulness	Detection Value
LION - TIGER (JM: 7.60) 31 Cat 20 Jungle 17 Animal, Roar 10 Fierce 7 Hunt, Tail 6 Growl, Mean 5 Yellow 4 Africa, Beast, Danger, Leopard, Zoo 3 Big, Kill, Large, Paw 158 Total Responses 19 Different Responses	
Low Scores	
SPIDER - WIDOW (JM: 3.92) 101 Wed 32 Black 133 Total Responses 2 Different Responses	CASTLE - HUT (DV: .00) 74 House 13 Home 4 Island 3 Room 2 Cold 96 Total Responses 5 Different Responses
STEP - BROTHER (JM: 3.87) 166 Sister 6 Mother 2 Father 174 Total Responses 3 Different Responses	SOAP - WATER (DV: .00) 52 Wash 38 Clean 15 Bath 105 Total Responses 3 Different Responses
DUST - BOWL (JM: 3.58) 5 Water 3 Football 8 Total Responses 2 Different Responses	

TABLE F-1 Continued

Joint Meaningfulness	Detection Value
CHEESE - MOUSE (JM: 3.57)	BANDIT - THIEF (DV: .00)
70 Rat	84 Steal
23 Mice	64 Robber
18 Mouse	39 Crook
10 Hole	27 Rob
8 Small	14 Bad, Mask
4 Cheese	8 Catch
133 Total Responses	6 Money
6 Different Responses	5 Cop, Jail
	4 Crime, Criminal
	3 Police
ASH - GIN (JM: 2.58)	2 Law
	279 Total Responses
No Common Items	14 Different Responses
	BANKER - BEGGAR (DV: .00)
	192 Money
	12 Man
	9 Rich
	2 $
	215 Total Responses
	4 Different Responses

APPENDIX G

DETECTION VALUE: RESPONSE HIERARCHIES FOR 240 WORDS

Detection Value

The norms for Detection Value (DV) were gathered from incoming freshmen during orientation week at Vanderbilt University in September, 1963. The 120 word-pairs were administered both forward and backward. In the forward form the right-hand member of the pair was presented with instructions to guess which word would elicit this response. In the backward form the left-hand member was presented and the same instructions given. The subject was given three blanks and a 30 second time period in which to make three guesses. The task was arranged so that no subject was asked to respond to a given word-pair in both the forward and backward forms.

The stimulus and response members of the 120 pairs were each divided into three groups for a total of six sets of 40 words. The words were listed in two columns in mimeographed booklets and each word was preceded by a horizontal line on which the subject was to write his guess. The booklets also contained material for the Joint Meaningfulness task. The order and arrangement of words was counterbalanced so that no subject received the same word in both tasks. Each of the six booklets was presented to 142 subjects. Of the total of 852 subjects, 592 were males and 260 were females. The ratio of males to females was similar in each group.

The statement printed on the front of the booklets contained the following instructions:

> "The purpose of this test is to determine how well you can judge other people's associations to words. On the following pages are 40 words, each of which is preceded by a blank space. Each word was given by students as an association to the word that belongs in the blank space. Your task is to guess which word goes in the blank space. Because this is a difficult task, you will be given three guesses for each missing word.
>
> The words you will see were obtained by giving an association test to hundreds of students. In the test students were presented with a list of words, one at a time, and asked to give the first association that came to mind for each. For example, to the word table, 84 per cent of the students gave the association of chair, 4 per cent gave the association of food, and 2 per cent gave the association of desk. Your task is to work backwards from such associations to the original words. For example, an item that could be formed from the above association is as follows:
>
> _______________ food
>
> _______________ food
>
> _______________ food
>
> One student for his first guess wrote steak in the first blank space, which was not the word that obtained food in previous studies

Table G-1

Detection Value Response Hierarchies

ALLIGATOR (017)

26	Crocodile
19	Crocidile
14	Reptile, Swamp
11	Animal
6	Crocadile
5	Shoes
4	Crockadile, Shoe, Teeth
3	Lake, Snake
2	Bag, Crockodile, Skin
0	Illegible
1	Blank
142	Total
37	Different Responses

ANTLERS (093)

94	Deer
19	Horns
11	Moose
10	Reindeer
2	Buck, Raindeer
0	Illegible
0	Blank
142	Total
10	Different Responses

APE (042)

85	Monkey
12	Gorilla
11	Man
7	Animal
6	Jungle
3	Evolution
2	Banana, Hairy, Tree, Trees, Zoo
0	Illegible
0	Blank
142	Total
19	Different Responses

APPLE (100)

39	Fruit
29	Tree
16	Pie
12	Orange
6	Cider, Teacher
5	Core, Pear
4	Food
3	Orchard, Red
2	Eve, Peach, Sauce
0	Illegible
0	Blank
142	Total
22	Different Responses

ASH (113)

43	Fire
34	Cigarette
23	Tray
5	Can
4	Burn, Cinder, Tree
2	Cigar, Cigarrette, Smoke, Wood
0	Illegible
0	Blank
142	Total
28	Different Responses

ATHLETE (029)

33	Football
29	Sports
16	Sport
8	Game
7	Player
4	Muscle
3	Man, Star
2	Athletics, Ball, College, Contest, Games, Runner, Strength, Strong
0	Illegible
0	Blank
142	Total
39	Different Responses

Table G-1 Continued

AUTOMOBILE (036)

100	Car
3	Highway, Road, Travel
2	Accident, Engine, Garage, Gas, Street, Tire, Tires, Transportation, Vehicle
0	Illegible
0	Blank
142	Total
28	Different Responses

AX (019)

27	Wood
26	Hatchet
21	Tree
9	Hammer
7	Handle
6	Chop
5	Pick
3	Cut, Head, Knife, Lumberjack
2	Blade, Hachet, Lumber, Saw, Steel, Timber, Woods
0	Illegible
0	Blank
142	Total
33	Different Responses

BABY (032)

25	Child
23	Infant
22	Mother
12	Bottle
8	Crib
6	Crying
5	Birth, Cry
4	Diaper
2	Bed, Blanket, Diapers, Enfant, Rattle, Toys, Youth
0	Illegible
0	Blank
142	Total
34	Different Responses

BACON (083)

86	Eggs
10	Pig, Pork
8	Breakfast
6	Egg, Hog
5	Ham
3	Food
0	Illegible
0	Blank
142	Total
16	Different Responses

BALL (007)

53	Bat
28	Game
8	Basket
6	Sphere
4	Sport
3	Baseball, Bounce, Fun, Rubber, Sports, Toy
2	Dance, Field, Football, Play, Roundness
0	Illegible
1	Blank
142	Total
30	Different Responses

BANDIT (104)

52	Robber
32	Thief
17	Crook
8	Outlaw
6	Robbery
4	Gun
3	Mask
2	Bank, Cowboy, Criminal
0	Illegible
0	Blank
142	Total
24	Different Responses

Table G-1 Continued

BANKER (001)

72	Money
36	Bank
11	Teller
2	Executive, Rich
0	Illegible
1	Blank
142	Total
23	Different Responses

BARN (058)

36	Farm
17	Cow
13	Hay
11	Animals, Cows
9	Horse
4	Cattle, Storehouse
3	Hayloft, Horses, Livestock, Red
2	Animal, Chicken, Country, Loft, Stable, Stall
0	Illegible
0	Blank
142	Total
31	Different Responses

BED (041)

67	Sleep
16	Pillow
11	Blanket, Sheet
6	Bedroom
5	Chair, Room
4	Table
3	Cover
2	Furniture, Mattress, Night, Sheets, Spread
0	Illegible
0	Blank
142	Total
18	Different Responses

BEE (011)

68	Honey
20	Sting
13	Insect
10	Bird
8	Hive
5	Flower
4	Birds
2	Buzz, Queen, Wasp
1	Illegible
0	Blank
142	Total
17	Different Responses

BEGGAR (001)

22	Money
18	Man
13	Thief
12	Pauper, Tramp
11	Bum
10	Poor
7	Hobo
4	Alms, Rags
3	Cripple, Poverty
2	Charity, Cup
0	Illegible
1	Blank
142	Total
32	Different Responses

BIRD (033)

13	Robin
12	Nest
10	Fly, Song
9	Feather, Tree
7	Flight, Fowl
6	Bee
5	Eagle, Wing
4	Animal, Canary
3	Cage, Wings
2	Feathers. Flying, Plane, Sparrow
0	Illegible
2	Blank
142	Total
44	Different Responses

Table G-1 Continued

BOAT (003)

56	Water
25	Ship
16	Sail
8	Motor
6	Lake
5	Ocean
4	Sea
2	River, Row, Sailing
0	Illegible
2	Blank
142	Total
24	Different Responses

BOOK (057)

17	School
11	Novel, Page
9	Read
8	Pages, Reading, Study
6	Text
5	Library, Story
4	Author, Cover, Knowledge Literature
3	Education, Learning
2	Desk, Fiction, Paper, Reader, Shelf, Store
0	Illegible
1	Blank
142	Total
41	Different Responses

BOTTLE (032)

24	Glass
16	Beer
14	Milk
12	Baby
8	Cap, Container
7	Jar, Whiskey
6	Liquid
5	Drink
4	Coke, Pop, Top
3	Can, Liquor, Soda
2	Cork, Opener, Wine
0	Illegible
1	Blank
142	Total
26	Different Responses

BOW (067)

64	Arrow
34	Ribbon
10	Tie
4	Ship
3	Bend, Curtsey, Stern
2	Archer, Boat, Curtsy, Hair
0	Illegible
0	Blank
142	Total
24	Different Responses

BOWL (089)

18	Dish
15	Cereal
13	Fruit, Soup
10	Spoon
9	Salad
8	Cup
5	Food, Plate, Sugar
4	Game
3	Finger, Saucer
2	Ball, Pan, Strike, Toilet
1	Illegible
1	Blank
142	Total
38	Different Responses

BOY (034)

102	Girl
8	Man
7	Male
3	Child, Son
2	Adolescence, Kid, Scout
0	Illegible
1	Blank
142	Total
20	Different Responses

Table G-1 Continued

BRICK (120)

46	House
20	Stone
18	Building
12	Wall
8	Mason
4	Clay, Layer
3	Cement, Mortar, Red, Straw
2	Bat, Chimney, Kiln
0	Illegible
0	Blank
142	Total
26	Different Responses

BRIDGE (044)

72	River
16	Water
12	Cards
6	Draw
4	Construction
3	Car, Road, Table
2	Contract, Teeth
0	Illegible
1	Blank
142	Total
28	Different Responses

BROTHER (112)

123	Sister
5	Boy
3	Family
2	Friend, Mother
0	Illegible
0	Blank
142	Total
12	Different Responses

BRUSH (060)

70	Hair
25	Comb
9	Paint
8	Tooth
6	Clothes
3	Teeth
2	Fire, Shoe
0	Illegible
0	Blank
142	Total
25	Different Responses

BUG (055)

94	Insect
6	Ant, Spider
4	Beetle, Roach
3	Fly
2	Bed, Pest
0	Illegible
0	Blank
142	Total
29	Different Responses

BULLET (024)

111	Gun
6	Rifle
5	Pistol
3	Shot, Speed
2	Death, Hole, Lead, Shell, Wound
0	Illegible
0	Blank
142	Total
14	Different Responses

BUTTER (030)

118	Bread
5	Margarine
4	Cream
3	Margerine
3	Milk
0	Illegible
0	Blank
142	Total
14	Different Responses

BUTTERFLY (070)

47	Insect
24	Moth
8	Caterpillar, Net
7	Cocoon
5	Wing, Wings
4	Beauty, Bug, Flower
3	Collection, Color
2	Caterpiller, Flowers
0	Illegible
0	Blank
142	Total
30	Different Responses

Table G-1 Continued

BUTTON (095)

51 Shirt
18 Hole
15 Coat
6 Bow
5 Snap, Zipper
4 Blouse, Dress, Hook
3 Buttonhole, Sew
2 Bows, Fastener, Thread
0 Illegible
0 Blank
142 Total
32 Different Responses

CAN (066)

54 Tin
20 Food
14 Container
9 Opener, Trash
8 Garbage
6 Beer
4 Beans
2 Soup, Waste
0 Illegible
0 Blank
142 Total
24 Different Responses

CAR (036)

45 Automobile
11 Engine
9 Motor
7 Auto, Transportation
6 Road, Speed
5 Garage
4 Bus, Driver, Gas, Gasoline
2 Automobile, Race, Truck
0 Illegible
0 Blank
142 Total
39 Different Responses

CARPET (009)

82 Rug
43 Floor
2 Wool
0 Illegible
2 Blank
142 Total
16 Different Responses

CASTLE (107)

38 King
15 Palace
13 Knight
9 Moat
8 Mansion
7 Fort
5 Prince
4 Fortress
3 Home, House, Knights
Rock, Wall
2 Giant, Sand
0 Illegible
0 Blank
142 Total
39 Different Responses

CAT (091)

112 Dog
10 Mouse
6 Animal
3 Alley
2 Feline
1 Illegible
0 Blank
142 Total
13 Different Responses

CEILING (076)

39 Floor
31 Roof
18 Room, Wall
10 Top
3 Light, Walls
2 Head, High, House, Plaster,
Sky
0 Illegible
0 Blank
142 Total
22 Different Responses

Table G-1 Continued

CHEESE (105)

42	Mouse
30	Milk
7	Crackers
6	Butter, Cake, Food, Swiss
5	Rat
4	Cream
3	Bread, Cow, Ham
2	Goat, Mice, Mold, Smell
0	Illegible
0	Blank
142	Total
29	Different Responses

CHILD (006)

28	Mother
19	Baby
14	Parent
12	Adult
8	Boy
6	Kid
5	Infant, Youth
4	Parents
3	Children, Toys, Young
2	Family, Girl, Man, Play, School, Toy, Youngster
0	Illegible
1	Blank
142	Total
36	Different Responses

CHURCH (118)

37	God
17	Religion
16	Sunday
15	Steeple
9	Worship
6	Minister
5	Preacher
4	School
3	Temple
2	Altar, Building, Chapel, Christ, Christian
0	Illegible
0	Blank
142	Total
34	Different Responses

CITIZEN (068)

22	Person
19	Country
9	Resident
8	Member
7	Nation, Voter
6	American, Community, Patriot
5	United States
4	Man, Town
3	Inhabitant
2	America, City, Countryman, Duty, Government, Individual, Native, Neighbor, People, State
0	Illegible
1	Blank
142	Total
38	Different Responses

CITY (081)

81	Town
21	State
6	People
3	Buildings, Nashville, New York
2	Building, Bus, Chicago, Metropolis, Skyscraper, Street
0	Illegible
0	Blank
142	Total
25	Different Responses

CLAW (092)

26	Cat
13	Scratch
11	Bear
10	Bird, Paw
8	Eagle, Talon
5	Tiger
4	Crab, Fang, Foot, Nail
3	Fingernail, Hand
2	Animal, Beak, Hammer, Hook, Lion, Lobster
0	Illegible
0	Blank
142	Total
37	Different Responses

Table G-1 Continued

CLAY (120)

24	Mud
23	Dirt
18	Pottery
7	Earth, Mold
5	Brick, Model
4	Ground, Red
3	Pigeon, Rock, Sand, Soil, Statue
2	Court, Potter, Sculpture
1	Illegible
0	Blank
142	Total
40	Different Responses

CLOCK (038)

104	Time
13	Watch
10	Alarm
5	Tick
2	Hand, Hands
0	Illegible
0	Blank
142	Total
12	Different Responses

CLOSET (053)

81	Clothes
13	Storage
12	Clothing
6	Room
5	Door
3	Cloths, Hanger, Wardrobe
2	Bedroom, Broom, Hangars, Hangers
0	Illegible
0	Blank
142	Total
20	Different Responses

CLOTHING (050)

26	Shirt
20	Dress
10	Apparel, Suit
7	Pants
6	Coat
5	Closet, Garment
4	Dresses, Warmth
3	Food, Store, Wardrobe Winter
2	Apparrel, Clothes, Shelter
0	Illegible
0	Blank
142	Total
44	Different Responses

COAT (035)

31	Hat
14	Jacket
13	Tie
12	Winter
10	Warmth
6	Fur
5	Sweater
4	Clothes
3	Cloak, Hanger, Pants, Rain, Suit, Weather, Wool, Wrap
2	Clothing, Dress, Warm
0	Illegible
1	Blank
142	Total
35	Different Responses

COFFEE (018)

47	Tea
18	Cream
14	Cup
13	Pot
8	Sugar
5	Black
4	Drink, Milk
3	Brazil, Breakfast
2	Bean, Break, Cafine, Toast
0	Illegible
0	Blank
142	Total
29	Different Responses

Table G-1 Continued

CORN (114)

42	Cob
12	Food, Stalk
8	Field
6	Ear
5	Crop, Flakes, Husk
4	Wheat
3	Cereal, Maize, Vegetable
2	Belt, Bread, Cotton, Grain, Kernal, Meal, Whiskey
0	Illegible
1	Blank
142	Total
38	Different Responses

COURT (119)

33	Judge
23	Law
21	Justice
17	Tennis
11	Trial
6	Lawyer
4	King, Patio
3	Jury
2	Basketball, Room, Yard
0	Illegible
0	Blank
142	Total
26	Different Responses

CROCODILE (017)

84	Alligator
9	Swamp
8	Aligator
6	Reptile
5	Animal, Water
4	Tear
3	Teeth
2	Allegator, Danger, River, Tears
0	Illegible
1	Blank
142	Total
21	Different Responses

CROWD (048)

63	People
40	Mob
12	Group
4	Mass, Riot
3	Throng
2	Friends
0	Illegible
0	Blank
142	Total
21	Different Responses

CURRENCY (045)

116	Money
5	Dollar
4	Bank
3	Cash
2	Coin, Coins
0	Illegible
0	Blank
142	Total
16	Different Responses

DAGGER (031)

85	Knife
19	Cloak
11	Sword
6	Murder
3	Dirk
2	Thief
0	Illegible
0	Blank
142	Total
22	Different Responses

DAWN (061)

46	Morning
31	Sunrise
27	Sun
6	Light
5	Dusk
4	Day
2	Daybreak, Daylight, Horizon, Sun-rise, Sunlight, Sunset
0	Illegible
0	Blank
142	Total
23	Different Responses

Table G-1 Continued

DEER (093)

32	Doe
19	Animal
15	Forest
11	Hunting
10	Antlers
7	Fawn, Hunter
5	Buck
4	Antler, Hunt
3	Antelope, Venison
2	Moose, Woods
0	Illegible
0	Blank
142	Total
32	Different Responses

DEVIL (111)

59	Hell
20	Angel
13	Satan
12	Evil
6	Demon
4	Fire, Horns, Sin
3	God
2	Bad, Pitchfork
0	Illegible
0	Blank
142	Total
24	Different Responses

DIAMOND (098)

65	Ring
21	Jewel
13	Gem
7	Stone
5	Carbon, Coal
2	Baseball, Engagement, Money, Ruby
0	Illegible
1	Blank
142	Total
27	Different Responses

DOCTOR (028)

32	Nurse
26	Medicine
11	Lawyer
10	Patient
8	Hospital, Sickness
7	Illness
6	Dentist
4	Physician
2	Disease, Man, Operation
0	Illegible
0	Blank
142	Total
36	Different Responses

DOG (091)

93	Cat
11	Pet
7	Animal
5	Puppy
3	Bark, Canine
2	Colar, Collie, Companion
0	Illegible
0	Blank
142	Total
23	Different Responses

DREAM (102)

65	Sleep
28	Nightmare
20	Day
6	Vision
5	Night
2	Fantasy, Illusion
0	Illegible
1	Blank
142	Total
20	Different Responses

Table G-1 Continued

DUCK (094)

29	Water
12	Bird
10	Goose, Hunting
9	Quack
6	Hunter, Mallard
5	Geese, Pond
4	Bill, Fowl, Lake
2	Chicken, Donald, Down, Feathers, Flight, Gun, Waddle
0	Illegible
1	Blank
142	Total
42	Different Responses

DUST (089)

96	Dirt
4	Cloth, Desert
3	Broom
2	Ashes, Lint, Rag, Sand, Speck, Storm
0	Illegible
0	Blank
142	Total
33	Different Responses

EAGLE (033)

67	Bird
10	Hawk
5	America, Bald
4	Symbol
3	Dollar, Emblem, Flight, Fly, Nation
2	Eye, Flying, Freedom, Mountain, Nest, Scout, Sky, Vulture, Wings
0	Illegible
0	Blank
142	Total
37	Different Responses

EGG (115)

58	Bacon
39	Chicken
12	Breakfast
9	Hen
7	Ham
4	Yoke, Yolk
1	Illegible
0	Blank
142	Total
15	Different Responses

EMBLEM (073)

27	Insignia
15	Symbol
13	Crest
10	Flag
9	Ensignia, Seal
8	Sign
5	Badge
3	School
2	Design, Eagle, Loyalty, Medal, Organization, Patch, Pin, Standard, Sticker
1	Illegible
1	Blank
142	Total
41	Different Responses

ENEMY (071)

34	Friend
23	War
17	Foe
10	Russia
7	Opponent
4	Fight, Hate
3	Army, Communist, Gun, Hostility
2	Battle, Hatred, Russians, Soldier, Adversary
0	Illegible
1	Blank
142	Total
36	Different Responses

ENGINE (010)

31	Motor
29	Car
15	Fire
14	Train
13	Steam
11	Automobile
8	Power
6	Machine
2	Combustion, Gasoline, Locomotive
0	Illegible
0	Blank
142	Total
20	Different Responses

Table G-1 Continued

ENVELOPE (069)

106	Letter
14	Stamp
4	Mail
3	Paper, Stationary, Stationery
0	Illegible
0	Blank
142	Total
15	Different Responses

FARM (058)

32	Animals
12	Animal
11	Cow
10	Barn, Crops
8	Country
7	Cows, Farmer
5	Tractor
4	Cattle
3	Agriculture, Field, Produce, Ranch
2	Fields, Food, Horses, Land, Plow, Rural
0	Illegible
0	Blank
142	Total
32	Different Responses

FIELD (114)

38	Meadow
24	Football
15	Pasture
7	Grass
5	Corn
4	Cotton, Farm, Plain
3	Cattle, Cows, Plow, Stream, Wheat
2	Athletic, Baseball, Crop, Hay, Track
0	Illegible
0	Blank
142	Total
34	Different Responses

FIG (099)

51	Tree
23	Fruit
22	Leaf
10	Date
9	Newton
3	Cookie, Food
2	Bar, Olive, Plum, Prune
0	Illegible
2	Blank
142	Total
22	Different Responses

FINGER (086)

85	Hand
19	Thumb
11	Ring
10	Toe
3	Digit, Nail
2	Index
0	Illegible
0	Blank
142	Total
16	Different Responses

FISH (040)

39	Water
9	Sea
8	Swim
7	Food
5	Bait, Lake, Ocean
4	Fisherman, Pole, Trout
3	Boat, Hunt, Pond, Swimming
2	Fishing, Fowl, Friday, Hook, Minnow, River, Tackle, Worm
0	Illegible
0	Blank
142	Total
46	Different Responses

FOOL (023)

49	Idiot
11	Jester
9	Clown
5	Man, Stupid, Trick
3	April, Loafer, Stupidity
2	Angel, Crazy, Gold, Imbecile, Joker, Laughter, Madman, Moron, Nut, People, Tease

Table G-1 Continued

0 Illegible
2 Blank
142 Total
45 Different Responses

FOOT (014)

41 Shoe
23 Hand
22 Toe
10 Head, Leg
5 Toes
4 Sock, Walk
3 Ankle
2 Ball, Football, Inch, Yard
0 Illegible
0 Blank
142 Total
25 Different Responses

FRIEND (071)

32 Enemy
20 Companion
13 Girl
12 Buddy, Pal
8 Boy
5 Comrade, Person
3 Help, Trust
2 Acquaintance, Comrad
0 Illegible
1 Blank
142 Total
36 Different Responses

FROST (072)

34 Cold
28 Winter
22 Snow
10 Dew, Fall
9 Ice
6 Morning
4 Autumn, Freeze
2 Bite, Jack
0 Illegible
1 Blank
142 Total
21 Different Responses

FRUIT (027)

46 Apple
20 Orange
18 Vegetable
9 Tree
6 Citrus
4 Banana
3 Food, Salad
2 Apples, Basket, Orchard, Pear
0 Illegible
0 Blank
142 Total
37 Different Responses

GARBAGE (066)

42 Trash
25 Can
18 Waste
5 Refuse, Trash Can
3 Disposal, Dump, Filth, Flies, Pail, Rubbish, Truck
2 Collector, Dirt, Food, Man, Odor, Smell
0 Illegible
0 Blank
142 Total
32 Different Responses

GENIUS (103)

39 Brain
10 Smart
9 Intelligence
8 Idiot, Intellect
7 Intellectual
5 Intelligent, Prodigy, Scientist
4 Inventor
3 Einstein, Man, Moron
2 Brilliance, Einstien, Mind, Studies, Wizard
0 Illegible
0 Blank
142 Total
41 Different Responses

Table G-1 Continued

GERM (052)

61	Disease
27	Bacteria
7	Virus
6	Cold, Sickness
4	Infection
3	Illness
2	Bug, Medicine, Microscope, Wheat
0	Illegible
0	Blank
142	Total
31	Different Responses

GIANT (096)

22	Midget
17	Monster
16	Dwarf
12	Man
8	Goliath
4	Jack
3	David, Large, Size
2	Beanstalk, Beast, Cyclops, Elephant, Fairy Tale, Football, Huge, King, Pigmy, Tall, Texas, Tree
0	Illegible
1	Blank
142	Total
50	Different Responses

GIN (113)

34	Cotton
16	Tonic
13	Liquor
11	Alcohol
10	Drink, Whiskey
6	Cards, Rummy
4	Rum, Vodka
2	Beverage, Booze, Bottle, Drunk, Squirt, Wiskey
1	Illegible
0	Blank
142	Total
31	Different Responses

GIRL (080)

81	Boy
13	Female
11	Friend
7	Dress, Woman
4	Beauty, Sex
3	Love
0	Illegible
0	Blank
142	Total
20	Different Responses

GLOVE (077)

106	Hand
6	Baseball, Hat
3	Hands, Mitten
2	Leather, Winter
0	Illegible
0	Blank
142	Total
21	Different Responses

GOD (111)

21	Heaven
20	Religion
13	Christ
11	Jesus
10	Love
8	Lord
6	Man
5	Church, Father
4	Bible, Creator, Deity
3	Belief
2	Almighty, Being, Devil, Life, Savior, Supreme,
0	Illegible
0	Blank
142	Total
35	Different Responses

GOLF (007)

34	Club
19	Ball
14	Sport
10	Game
9	Clubs, Tee
8	Course

Table G-1 Continued

3	Fairway, Green, Tennis
2	Bag, Greens, Leisure, Recreation Tournament
1	Illegible
1	Blank
142	Total
33	Different Response

GOOSE (094)

44	Duck
43	Gander
8	Bird
6	Feathers, Geese
4	Feather
3	Animal
2	Ducks, Farm, Goslin, Gosling, Hen
0	Illegible
1	Blank
142	Total
29	Different Responses

GOVERNOR (075)

73	State
6	Leader, Politics
5	Politician, Ruler
4	Executive, Government, Mansion, Senator
3	Election, Wallace
2	Capitol, Clement, Mayor, President
0	Illegible
0	Blank
142	Total
32	Different Responses

GRAPE (087)

42	Wine
28	Fruit
18	Vine
14	Juice
11	Raisin
2	Berry, Bunch, Food, Jelly, Orange, Purple, Raisan, Seeds
0	Illegible
1	Blank
142	Total
25	Different Responses

GUN (024)

32	Rifle
28	Bullet
21	Pistol
10	Shot
7	Weapon
4	Barrel, Hunter
3	Hunt, Hunting, Revolver, Shoot
2	Bullets, Death, Powder, Target
0	Illegible
0	Blank
142	Total
31	Different Responses

GUN (117)

33	Rifle
20	Bullet
14	Shot
13	Pistol
11	Weapon
7	Shoot
4	Firearm, Hunt
3	Death, Powder
2	Bullets, Crook, Hunting, Murder, Trigger, War
0	Illegible
0	Blank
142	Total
34	Different Responses

HAMMER (025)

107	Nail
7	Saw
5	Nails
4	Tool
2	Anvil, Ax, Carpenter, Pound, Sickle, Steel
0	Illegible
0	Blank
142	Total
17	Different Responses

Table G-1 Continued

HAND (086)

40	Finger
30	Arm, Fingers
19	Foot
4	Glove
2	Face, Palm
0	Illegible
0	Blank
142	Total
22	Different Responses

HARBOR (090)

38	Ship
20	Port
19	Boat
16	Bay
7	Ships, Water
5	Boats
4	Sea, Wharf
3	Inlet
2	Lights, Ocean
0	Illegible
0	Blank
142	Total
27	Different Responses

HAT (035)

63	Head
41	Coat
6	Cap
3	Gloves, Rack
2	Straw
0	Illegible
0	Blank
142	Total
30	Different Responses

HATCHETT (019)

66	Ax
23	Axe
19	Tree
7	Knife
4	Indian
3	Hammer, Tool, Wood
2	Saw, Weapon
0	Illegible
1	Blank
142	Total
19	Different Responses

HEAD (002)

28	Hair
27	Body
15	Face
8	Brain, Hat
7	Top
6	Neck
5	Shoulders
4	Eye, Foot, Nose
3	Feet
2	Chief, Leader
0	Illegible
1	Blank
142	Total
32	Different Responses

HILL (084)

72	Mountain
13	Valley
7	Dale
5	Mound
4	Rise, Slope
3	Cliff, Country, High, Top
2	Knoll, Mountains
0	Illegible
1	Blank
142	Total
32	Different Responses

HONEY (011)

99	Bee
26	Bees
4	Comb
3	Bear
2	Sweet
0	Illegible
0	Blank
142	Total
13	Different Responses

HOUR (097)

73	Minute
34	Time
10	Clock
8	Minutes
7	Day
2	Glass, Lunch, One, Second
0	Illegible
0	Blank
142	Toal
11	Different Responses

Table G-1 Continued

HUT (107)

20	Shack
19	House
17	Grass
10	Native
8	Island
7	Hovel
5	Natives, Village
4	Cabin
3	Abode, Adobe, Cottage, Jungle, Straw, Thatch
2	Dwelling, Home, Mud, Shelter, Tree
0	Illegible
0	Blank
142	Total
39	Different Responses

INK (008)

118	Pen
3	Spot, Well
2	India, Letter, Write
0	Illegible
0	Blank
142	Total
18	Different Responses

INSECT (055)

53	Bug
22	Fly
12	Ant
6	Mosquito, Pest
5	Bite
4	Animal, Bee
3	Spider
2	Beetle, Bugs, Butterfly
0	Illegible
0	Blank
142	Total
33	Different Responses

INVALID (029)

32	Cripple
10	Wheel Chair
8	Wheelchair
7	Patient, Sickness
6	Bed, Illness
5	Sick, Void
4	Doctor, Shut-in
3	Criple, Hospital, Paralysis
2	Crippled, Handicap, Ticket, Untrue
0	Illegible
1	Blank
142	Total
48	Different Responses

JAIL (079)

44	Prison
17	Bars
14	Criminal
12	Prisoner
9	Cell
7	Crime
5	Convict
4	Law, Police
3	Crook, House
2	Penitentiary, Sentence
1	Illegible
0	Blank
142	Total
28	Different Responses

JEWEL (098)

69	Diamond
15	Gem
10	Ring
6	Watch
5	Crown, Ruby
4	Stone
3	Box
2	Luxury, Pearl, Peral, Thief
0	Illegible
0	Blank
142	Total
29	Different Responses

Table G-1 Continued

JUSTICE (085)

65	Law
19	Judge
15	Court
12	Peace
6	Freedom
3	Right, Truth
2	Courts, Crime, Equality, Fairness, Lawyer
0	Illegible
0	Blank
142	Total
21	Different Responses

KID (006)

65	Child
49	Goat
10	Boy
2	Brother, Sheep, Youngster, Youth
0	Illegible
0	Blank
142	Total
17	Different Responses

KING (075)

87	Queen
14	Ruler
9	Crown
6	Monarch
5	Kingdom
3	Leader, Royalty
2	Throne
0	Illegible
0	Blank
142	Total
21	Different Responses

KITCHEN (062)

48	Food
29	Stove
18	Cook
10	Sink
7	House
5	Cooking
2	Cabinet, Cuisine, Knife, Mother, Room, Table, Utensils
0	Illegible
0	Blank
142	Total
24	Different Responses

KNIFE (031)

32	Fork
20	Blade
17	Cut
7	Gun
6	Weapon
4	Cutter, Wound
3	Meat
2	Butcher, Kitchen, Pocket, Sheath, Spoon, Stabbing, Steak, Steel
0	Illegible
0	Blank
142	Total
49	Different Responses

LABEL (073)

27	Can
18	Tag
16	Name
15	Bottle
8	Jar
6	Clothes, Package
3	Coat, Food
2	Advertisement, Brand, Sign, Stemp, Title
0	Illegible
0	Blank
142	Total
44	Different Responses

LAKE (003)

65	Water
17	Boat, River
13	Pond
5	Fish
3	Sea
2	Dam, Mountain, Ocean, Ski, Stream
0	Illegible
1	Blank
142	Total
22	Different Responses

Table G-1 Continued

LAMP (041)

53 Light
44 Table
15 Desk
9 Bulb
7 Light Bulb, Shade
0 Illegible
0 Blank
142 Total
13 Different Responses

LEAF (099)

118 Tree
5 Fall
2 Autumn, Branch, Green, Oak, Rake, Twig
0 Illegible
0 Blank
142 Total
15 Different Responses

LETTUCE (020)

34 Salad
21 Tomato
20 Vegetable
19 Cabbage
12 Rabbit
6 Tomatoe
3 Green, Head, Leaf
2 Carrot, Food, Garden, Money, Tomatoes
1 Illegible
0 Blank
142 Total
24 Different Responses

LIBRARY (057)

105 Books
26 Book
2 Research, Study
0 Illegible
0 Blank
142 Total
11 Different Responses

LION (110)

52 Tiger
19 Jungle
9 Roar
8 Animal, Cat, King
5 Africa, Den, Mane
4 Beast, Tigar
2 Cage, Circus
0 Illegible
0 Blank
142 Total
24 Different Responses

LIP (083)

87 Mouth
23 Kiss
8 Face
6 Tongue
2 Smile, Talk, Word
0 Illegible
1 Blank
142 Total
18 Different Responses

LIZARD (074)

49 Snake
41 Reptile
9 Animal
5 Desert, Tail
3 Chameleon, Frog, Salamander
2 Alligator, Chamelion, Water
1 Illegible
0 Blank
142 Total
28 Different Responses

LOAFER (016)

46 Shoe
34 Bum
11 Beggar
6 Laziness
4 Worker
3 Goof-off, Hobo
2 Idleness, Lazy, Tramp, Vagrant
0 Illegible
3 Blank
142 Total
35 Different Responses

Table G-1 Continued

LOBSTER (092)

24 Crab, Food
19 Seafood
15 Fish
10 Maine
8 Claw, Ocean
5 Sea
3 Oyster, Tail
2 Claws, Crustacean, New England, Shell, Shrimp
0 Illegible
1 Blank
142 Total
27 Different Responses

LUNATIC (023)

25 Asylum
15 Idiot
14 Insanity, Maniac
9 Madman
7 Crazy, Moon
6 Nut
4 Man, Moron
3 Insane, Mad-man
2 Institution, Madness
0 Illegible
0 Blank
142 Total
41 Different Responses

MAID (116)

39 Servant
23 Butler
10 House
9 Negro
7 Girl
6 Woman
5 Helper
4 Cook
3 Clean, Cleaning, Help, Housekeeper, Service
2 Work
0 Illegible
0 Blank
142 Total
36 Different Responses

MAN (034)

97 Woman
5 Boy, Human, Male, Women
2 Animal, Person
0 Illegible
0 Blank
142 Total
28 Different Responses

MEADOW (082)

60 Field
23 Grass
12 Pasture
8 Brook
4 Flowers
3 Cow
2 Countryside, Cows, Farm, Fields, Green, Lane, Lark, Lawn, Valley
0 Illegible
0 Blank
142 Total
29 Different Responses

MICROBE (052)

32 Germ
27 Microscope
11 Biology
9 Bacteria
8 Science
5 Organism
4 Animal
3 Disease, Germs
2 Amoeba, Atom, Bug, Slide Minute, Molecule, Particle
0 Illegible
1 Blank
142 Total
41 Different Responses

Table G-1 Continued

MIDGET (096)

31	Dwarf
30	Giant
18	Circus
12	Small
6	Racer
5	Man, Person
4	Freak
2	Clown, Runt, Short, Shrimp
0	Illegible
3	Blank
142	Total
32	Different Responses

MILK (116)

81	Cow
14	Cream
7	Drink
6	Food
4	Baby, Cheese
3	Dairy
2	Cookies, Eggs, Glass
0	Illegible
0	Blank
142	Total
27	Different Responses

MINISTER (064)

57	Church
30	Preacher
10	Pastor
9	Religion
7	Priest
6	God
4	Bible
2	Clergyman, Man, Preach, Protestant, Reverend, Sermon
0	Illegible
0	Blank
142	Total
20	Different Responses

MINNOW (022)

98	Fish
17	Bait
8	Fishing
3	Guppy, Hook
2	Frog
0	Illegible
0	Blank
142	Total
17	Different Responses

MINUTE (097)

57	Second
30	Hour
27	Time
6	Clock
4	Small
2	Moment, Watch
0	Illegible
1	Blank
142	Total
20	Different Responses

MOB (048)

62	Riot
27	Crowd
10	Gang
7	People, Violence
3	Gangsters
2	Danger, Demonstration, Noise
0	Illegible
1	Blank
142	Total
28	Different Responses

MONEY (045)

17	Dollar
16	Bank
12	Cash
10	Wealth
7	Dollars
5	Gold, Paper, Wallet
4	Coins, Job
3	Coin, Green, Rich
2	Bill, Bills, Currency, Millionaire, Salary

Table G-1 Continued

0	Illegible
1	Blank
142	Total
55	Different Responses

MONKEY (042)

30	Ape
28	Animal
17	Zoo
14	Cage
7	Jungle, Tree
6	Banana
3	Circus, Gorilla
2	Face, Man, Peanuts, Tail
0	Illegible
0	Blank
142	Total
32	Different Responses

MOON (013)

56	Sun
12	Stars
9	Night
6	Sky
5	Earth, Star
4	Man
3	Harvest, Heavens, Light, Planet, Rocket
2	Cheese, Cresent, Love, Lunar, Silver
0	Illegible
0	Blank
142	Total
37	Different Responses

MORNING (061)

24	Sunrise
19	Dawn
18	Breakfast
17	Evening
16	Sun
13	Night
6	Day
5	Sunshine
4	Early, Light
3	Afternoon
2	Dew, Noon
0	Illegible
0	Blank
142	Total
22	Different Responses

MORON (103)

69	Idiot
10	Stupid
8	Imbecile
6	Dope
4	Stupidity
3	Fool, Nut, Person
2	Dumb, Dunce, Imbicile, Joke, Pity
0	Illegible
0	Blank
142	Total
39	Different Responses

MOTHER (101)

91	Father
10	Woman
8	Love
7	Child
4	Home, Parent
2	Birth, Daughter
0	Illegible
0	Blank
142	Total
22	Different Responses

MOUNTAIN (084)

78	Hill
14	Valley
4	Peak
3	Range, Rock, Trees
2	Climb, Height, Mole-Hill, Molehill, Plain, Rocky, Snow
0	Illegible
0	Blank
142	Total
36	Different Responses

Table G-1 Continued

MOUSE (105)

81	Cat
29	Rat
9	Cheese
5	Trap
3	Animal, Mice
2	House, Man, Rodent
0	Illegible
0	Blank
142	Total
15	Different Responses

NECKLACE (059)

31	Jewelry
23	Pearl
22	Neck
15	Pearls
12	Diamond
9	Girl
8	Bracelet
2	Beads, Beauty, Diamonds, Pendant, Woman
0	Illegible
0	Blank
142	Total
24	Different Responses

NEEDLE (039)

93	Thread
24	Pin
6	Sewing
4	Haystack
3	Eye
2	Point, Sew
0	Illegible
0	Blank
142	Total
15	Different Responses

NIGHT (102)

112	Day
8	Darkness
7	Dark
3	Stars
2	Evening, Lights, Sleep
0	Illegible
0	Blank
142	Total
13	Different Responses

OCEAN (046)

50	Sea
27	Water
9	Ship
8	Fish
7	Atlantic
6	Waves
5	Beach
4	Salt
3	Liner, Wave
2	Lake, Pacific, Ships, Voyage
0	Illegible
1	Blank
142	Total
25	Different Responses

OIL (030)

39	Well
18	Gas
11	Grease
8	Gasoline
6	Petroleum
4	Car, Lubricant, Texas
3	Motor, Water
2	Can, Coal, Derrick, Field, Fuel, Olive, Salad, Whale
0	Illegible
0	Blank
142	Total
44	Different Responses

ORANGE (037)

50	Fruit
35	Apple
11	Juice, Lemon
7	Color
4	Red, Tree
3	Florida

Table G-1 Continued

2 Grapefruit, Grove, Peel
0 Illegible
0 Blank
142 Total
22 Different Responses

ORGAN (002)

46 Music
34 Piano
21 Church
6 Heart, Pipe
5 Instrument, Stomach
3 Pipes
2 Body, Choir, Liver, Monkey
0 Illegible
1 Blank
142 Total
19 Different Responses

OYSTER (106)

44 Pearl
28 Shell
18 Clam
10 Sea
8 Ocean
7 Stew
6 Seafood
3 Fish, Food
2 Shrimp
0 Illegible
0 Blank
142 Total
23 Different Responses

PAINT (060)

36 Brush
27 House
14 Color
11 Picture
6 Artist
5 Art
4 Coloring, Walls
3 Decoration
2 Painting, Wall, Wallpaper
0 Illegible
0 Blank
142 Total
38 Different Responses

PAN (005)

50 Pot
18 Dish
12 Food
7 Pots
5 Cooking, Skillet
4 Bread, Cake, Cook, Stove
3 Frying, Gold, Kitchen
2 Bowl, Bucket, Kettle, Plate
0 Illegible
0 Blank
142 Total
29 Different Responses

PAPER (051)

40 Pencil
18 News
11 Pen
9 Writing
6 Book
5 Letter, Pulp
4 Ink, Write
3 Homework, Sheet, Typewriter,
2 Stationary, Theme, White, Wood
0 Illegible
0 Blank
142 Total
39 Different Responses

PARTY (065)

33 Fun
25 Dance
8 Birthday
7 People
5 House
4 Ball, Combo, Girls, Politics
3 Food

Table G-1 Continued

2	Band, Drink, Drinking, Fraternity, Gathering, Group, Music, Noise, Refreshments
0	Illegible
0	Blank
142	Total
46	Different Responses

PEACE (085)

82	War
6	Dove
5	Quiet
4	Corps, Tranquility
3	Calmness, Prosperity, World
2	Calm, Conference
0	Illegible
1	Blank
142	Total
37	Different Responses

PEAR (100)

77	Fruit
22	Tree
17	Apple
14	Peach
2	Food, Preserves
0	Illegible
0	Blank
142	Total
14	Different Responses

PEARL (059)

72	Oyster
14	Necklace
13	Jewel
8	Gem
4	Diver
3	Jewelry, Money, Ocean
2	Beauty, Ruby
0	Illegible
0	Blank
142	Total
28	Different Responses

PEN (008)

51	Ink
48	Pencil
9	Fountain, Paper
7	Writing
4	Pig
3	Letter, Write
0	Illegible
1	Blank
142	Total
15	Different Responses

PENCIL (051)

41	Pen
31	Lead
26	Paper
11	Writing
6	Eraser, Write
4	Sharpener
2	Letter, Point, School, Test, Work
0	Illegible
0	Blank
142	Total
19	Different Responses

PEOPLE (077)

27	Crowd
14	Friends, Humans
9	Men
7	Group
5	Animals, Population
4	Man, Nation
3	City, Mob, Persons
2	Beings, Citizens, Crowds, Folks, Friend, Human, Person, World
0	Illegible
0	Blank
142	Total
48	Different Responses

Table G-1 Continued

PEPPER (012)

109 Salt
8 Seasoning
7 Sneeze
5 Spice
2 Food, Shaker
0 Illegible
1 Blank
142 Total
14 Different Responses

PHYSICIAN (028)

114 Doctor
4 Illness, Sickness
3 Health, Medicine
2 Doctor, Healer, Man
0 Illegible
0 Blank
142 Total
16 Different Responses

PIT (021)

54 Hole
13 Pendulum
10 Barbecue
9 Snake
5 Lion, Well
4 Cherry, Trap
3 Olive
2 Cave, Fall, Mine, Stomach
0 Illegible
0 Blank
142 Total
40 Different Responses

POT (005)

52 Pan
24 Kettle
8 Food, Stove
6 Stew, Tea
5 Coffee
4 Cook, Flower
3 Soup
2 Belly, Kitchen, Pans, Roast
0 Illegible
1 Blank
142 Total
27 Different Responses

PRIEST (064)

37 Church
17 Father
15 Minister
13 Catholic
11 Religion
10 Preacher
5 Nun
3 Catholicism, Monk, Pastor
2 Catholic Church, Clergy, Cross, Holy, Robe
0 Illegible
0 Blank
142 Total
30 Different Responses

PRISON (079)

34 Jail
22 Cell
15 Bars, Convict
11 Criminal
7 Crime
6 Prisoner
3 Inmate
2 Criminals, Escape, Men, Prisoners, Warden
1 Illegible
0 Blank
142 Total
31 Different Responses

RABBIT (078)

26 Animal
13 Hare
12 Easter
9 Carrot, Ears, Fur
8 Bunny
6 Jack
4 Hunting
3 Dog, Hunter, Tail, Woods
2 Cotton, Forest, Hunt, Stew, Trap

Table G-1 Continued

0 Illegible
0 Blank
142 Total
42 Different Responses

RADIO (109)

54 Television
31 Music
10 T.V.
9 Station
5 Clock
3 Announcer, Broadcast, Program
2 Antenna, Communication, Sound, Transistor, Tube, Wireless
0 Illegible
0 Blank
142 Total
26 Different Responses

RAIN (067)

33 Storm, Water
10 Snow
9 Cloud
8 Clouds
7 Thunder, Umbrella
6 Shower
4 Drops
3 Wet
2 Flood, Sleet
0 Illegible
0 Blank
142 Total
30 Different Responses

RECORD (039)

34 Music
32 Phonograph
10 Player, Song
6 Stereo
5 Tape
4 Disc
3 Album, Disk, Hi-Fi
2 Account, Record Player, Recorder, Recording, Report, Victrola

0 Illegible
1 Blank
142 Total
35 Different Responses

REPTILE (074)

109 Snake
16 Alligator
5 Lizard
4 Animal
2 Turtle, Water
0 Illegible
0 Blank
142 Total
10 Different Responses

RESIDENT (068)

23 Home
21 House
11 Dormitory, Occupant
7 Dorm, Inhabitant
6 Owner
4 Doctor, Person
3 Student
2 Advisor, Boarder, Citizen, City, Community, Neighbor, People, Tenant, Woman
0 Illegible
0 Blank
142 Total
46 Different Responses

RIBBON (049)

37 Hair
17 Bow
10 Package
8 Blue
6 Prize
5 Award, Gift, Present, Typewriter
3 Girl, Red, Winner
2 Box, Cloth, Color, Dress, Scarlet, Scissors
1 Illegible
2 Blank
142 Total
38 Different Responses

Table G-1 Continued

RIFLE (026)

79	Gun
7	Range
6	Bullet, Hunting
5	Weapon
4	Pistol
3	Target
2	Army, Cartridge, Firearm, Hunt, Shotgun, Trigger, War
0	Illegible
0	Blank
142	Total
32	Different Responses

RING (027)

25	Bell, Wedding
17	Finger
16	Diamond, Marriage
6	Circle, Engagement
3	Jewelry, Phone, Telephone
2	Bells, Circus
0	Illegible
0	Blank
142	Total
30	Different Responses

RIVER (044)

45	Water
36	Stream
13	Bank
12	Boat
7	Lake
5	Mississippi
3	Creek
2	Bed, Brook, Current, Ocean, Swimming
0	Illegible
0	Blank
142	Total
23	Different Responses

ROAD (063)

48	Highway
35	Car
14	Street
7	Travel
5	Cars, Map
4	Concrete
3	Automobile, Path, Way
2	Gravel
0	Illegible
0	Blank
142	Total
24	Different Responses

ROOM (076)

37	House
17	Door
15	Bed
5	Space
4	Bedroom, Building, Furniture, Walls
3	Hall, Living, Quarters, Table
2	Apartment, Bath, Chair, Class, Closet, Enclosure, Floor, Home, Key, Kitchen, Mate
0	Illegible
0	Blank
142	Total
41	Different Responses

ROSE (054)

100	Flower
8	Red
4	Garden
3	Beauty, Bush, Petal
2	Bud, Flowers, Smell, Thorn
0	Illegible
0	Blank
142	Total
23	Different Responses

Table G-1 Continued

SAINT (015)

20 Church
19 Sinner
14 Angel
9 Religion
7 God
6 Martyr
5 Christian, Heaven, Priest
4 Holy
3 Apostle, Devil, Paul, Person
2 Bishop, Catholic, Holiness, Peter, Piety, Prophet, Sin
0 Illegible
0 Blank
142 Total
43 Different Responses

SALT (012)

84 Pepper
10 Food, Seasoning
8 Table
4 Ocean, Water
3 Sea, Shaker
2 Sugar
0 Illegible
0 Blank
142 Total
23 Different Responses

SAW (025)

32 Wood
23 Hammer
11 Tool
9 Blade, Tree
8 See
7 Board
6 Cut
5 Ax
3 Carpenter, Chain, Hack, Lumber
2 Hatchet, Log
0 Illegible
0 Blank
142 Total
31 Different Responses

SCOUT (080)

71 Boy
8 Explorer, Indian
6 Boys
3 Army, Camp, Hunt, Search
2 Frontier, Girl, Hike, Hunter, Man, Spy, Trail
0 Illegible
0 Blank
142 Total
38 Different Responses

SEA (046)

50 Ocean
18 Water
16 Fish
15 Ship
8 Boat
7 Shore
4 Beach
3 Sailor
2 Lake, Land, Waves, Whale
0 Illegible
0 Blank
142 Total
25 Different Responses

SHEEP (082)

47 Wool
19 Lamb
13 Animal
9 Goat
7 Herd
5 Cows, Flock
4 Farm, Pasture
3 Cow, Dog, Ewe
2 Grass, Herder, Lambs, Livestock, Mutton, Sheperd
0 Illegible
0 Blank
142 Total
26 Different Responses

Table G-1 Continued

SHELL (106)

65	Sea
9	Ocean
8	Beach
7	Clam
6	Conch
4	Fish, Oyster, Snail, Turtle
3	Crab, Seashore
2	Gun, Nut, Peanut, Shore
0	Illegible
0	Blank
142	Total
32	Different Responses

SHIP (090)

47	Boat
27	Ocean
11	Water
10	Sea
9	Navy
5	Sail, Vessel
4	Captain
3	Steam
2	Harbor, Sailing, Sailor
0	Illegible
0	Blank
142	Total
27	Different Responses

SHIRT (095)

38	Pants
17	Tie
13	Blouse
10	Clothes
9	Trousers
7	Man
6	Boy, Clothing
5	Skirt, Slacks
2	Apparel, Button, Buttons, Collar, Madras
0	Illegible
0	Blank
142	Total
31	Different Responses

SHOE (014)

45	Foot
42	Sock
8	Feet, Sole
6	Lace
5	Socks
4	Loafer
3	Boot, Slipper
2	Horse, Leather, String
0	Illegible
0	Blank
142	Total
24	Different Responses

SINK (062)

38	Kitchen
23	Dishes
13	Swim
11	Basin
10	Faucet
9	Ship
7	Water
4	Bathroom, Drain
2	Drown, Float, Lavatory, Soap, Stove
0	Illegible
0	Blank
142	Total
27	Different Responses

SINNER (015)

20	Saint
13	Devil
10	God
9	Church, Man
7	Evil, Hell
6	Criminal
5	Thief
4	Crook
3	Sin, Wrongdoer
2	Angel, Everyone, Repenter, Wrong
0	Illegible
7	Blank
142	Total
47	Different Responses

Table G-1 Continued

SISTER (101)

115	Brother
7	Family
6	Girl
4	Relative
2	Brat, Nun
0	Illegible
0	Blank
142	Total
12	Different Responses

SKIRT (088)

57	Blouse
39	Girl
27	Dress
4	Shirt
3	Clothes
2	Sweater
0	Illegible
0	Blank
142	Total
16	Different Responses

SMOKE (108)

78	Fire
32	Cigarette
4	Chimney
3	Cigarettes
2	Cigar, Cigaretts, Cloud, Pipe, Smog, Stack
1	Illegible
0	Blank
142	Total
22	Different Responses

SNAKE (021)

46	Reptile
8	Poison
7	Bite, Fear
6	Lizard, Serpent
5	Rattler
4	Ground, Rattle, Worm
3	Grass
2	Animal, Cobra, Danger, Poisonous, Snail, Woods
0	Illegible
1	Blank
142	Total
46	Different Responses

SOAP (004)

30	Water
26	Bath
11	Wash
9	Clean
7	Cleanliness
6	Bar, Detergent, Dirt, Suds
5	Lather
3	Face, Shower, Towel
2	Bubbles, Washing, Washrag
0	Illegible
2	Blank
142	Total
29	Different Responses

SOLDIER (026)

53	War
36	Army
8	Gun
6	Uniform
5	Battle, Fight
4	Fighter
3	Infantryman
2	Infantry, Military, Sailor, Warrior
0	Illegible
0	Blank
142	Total
26	Different Responses

SPIDER (043)

70	Web
36	Insect
8	Bug
4	Legs
3	Webb
2	Black Widow, Cob Web, Poison
0	Illegible
2	Blank
142	Total
21	Different Responses

Table G-1 Continued

STAMP (069)

58	Letter
42	Postage
16	Mail
7	Envelope
4	Collection
3	Post Office
2	Envelop
0	Illegible
0	Blank
142	Total
17	Different Responses

STARS (013)

46	Sky
32	Moon
9	Night
8	Stripes, Sun
5	Heaven
4	Galaxie, Heavens, Planets
3	Astronomy, Movie
2	Space
0	Illegible
0	Blank
142	Total
26	Different Responses

STEAM (010)

32	Heat
30	Engine
22	Water
9	Iron
8	Vapor
6	Bath
5	Kettle
4	Boat, Boil
3	Boiler, Power, Ship
2	Radiator
0	Illegible
0	Blank
142	Total
24	Different Responses

STEP (112)

33	Stairs
25	Stair
23	Walk
14	Foot
5	Ladder, Stairway
3	Jump, Movement, Porch, Staircase
2	Church, Dance, March
0	Illegible
0	Blank
142	Total
32	Different Response

STORE (050)

27	Food
18	Grocery
13	Department
12	Clothes, Groceries
5	Market, Merchandise
4	Drug
3	Buy, Items, Shop
2	Building, Clothing, Drugs, General, Money, Purchase, Town
0	Illegible
1	Blank
142	Total
40	Different Responses

STOREHOUSE (053)

49	Warehouse
12	Food
9	Goods, Grain
7	Barn
6	Storage
5	Building
4	Surplus
3	Boxes, Trunk, Wharehouse
2	Box, Crates, Meat, Supply, Tobacco
0	Illegible
0	Blank
142	Total
38	Different Responses

Table G-1 Continued

STORM (056)

48	Rain
37	Thunder
14	Wind
13	Hurricane
6	Lightning
4	Tornado, Weather
3	Clouds
2	Lighthouse
0	Illegible
0	Blank
142	Total
20	Different Responses

STOVE (018)

24	Heat
22	Oven
19	Cook
14	Food
8	Fire, Kitchen
7	Pot
6	Pipe
5	Gas
4	Wood
3	Coal, Cooking, Furnace, Refrigerator
2	Hot, Pan
0	Illegible
0	Blank
142	Total
25	Different Responses

STREET (063)

39	Road
27	Avenue
13	Car
12	Corner
7	Cars
6	Pavement, Sidewalk
4	City
3	Highway, House
2	Alley, Houses, Sign, Thoroughfare, Walker
0	Illegible
0	Blank
142	Total
27	Different Responses

SUMMER (118)

48	Winter
38	Vacation
8	Heat
7	Spring
6	Fun
5	Season, Sun
4	Fall
3	Hot, Swimming
2	Camp, Time
0	Illegible
0	Blank
142	Total
23	Different Responses

SYRUP (047)

45	Pancakes
32	Maple
17	Pancake
7	Sugar
6	Molasses
5	Tree
3	Waffles
2	Food, Honey, Hotcakes, Sweetness, Waffle
0	Illegible
0	Blank
142	Total
29	Different Responses

TELEVISION (109)

45	Radio
14	Entertainment
10	Program
6	Picture, Show
4	Movie
3	Night, Screen, Set
2	Antenna, Box, Color, Commercials, Home, News, Shows, Sight, Tube, Western
0	Illegible
0	Blank
142	Total
47	Different Responses

Table G-1 Continued

TENNIS (119)

33 Racket
30 Ball
23 Court
18 Sport
8 Game
6 Net, Racquet
3 Courts, Raquet
2 Table
0 Illegible
0 Blank
142 Total
20 Different Responses

THIEF (104)

32 Robber
29 Crook
9 Criminal, Robbery
8 Burglar
7 Steal
5 Theft
4 Jail
3 Beggar, Crime, Man
2 Burgular, Dishonest, Loot, Money, Police, Stealing
0 Illegible
0 Blank
142 Total
35 Different Responses

THORN (054)

48 Rose
15 Bush
10 Pain
7 Rosebush
6 Briar, Sticker
5 Tree
4 Prick
3 Blood, Bramble, Crown, Roses, Thistle
2 Cut, Rose Bush
0 Illigible
0 Blank
142 Total
37 Different Responses

THUNDER (056)

84 Lightning
20 Lightening
16 Storm
14 Rain
4 Noise
2 Cloud
0 Illegible
0 Blank
142 Total
8 Different Responses

TIGER (110)

75 Lion
19 Jungle
17 Cat
8 Animal
4 Beast
2 Hunting, India, Stripes
0 Illegible
0 Blank
142 Total
21 Different Responses

TOBACCO (108)

67 Cigarette
15 Smoke
12 Pipe
8 Cigarettes
7 Cigar
4 Cigarrette
3 Cigerette, Leaf
2 Crop
0 Illegible
0 Blank
142 Total
30 Different Response

TOMATO (020)

32 Vegetable
12 Soup
8 Juice, Lettuce, Plant, Salad
6 Catsup, Fruit, Potato

Table G-1 Continued

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5 Food, Ketchup
4 Garden
3 Red, Vine
2 Girl, Ketsup, Potatoe,
Sandwich, Sauce, [illegible]
0 Illegible
1 Blank
142 Total
35 Different Responses

TOWN (141)

99 City
11 Home, People
7 Country
3 House, Village
2 Cow, Nashville
0 Illegible
0 Blank
142 Total
14 Different Responses

TRIGGER (117)

124 Gun
7 Pistol
4 Finger
2 Bullet
0 Illegible
0 Blank
142 Total
9 Different Responses

TROUT (040)

110 Fish
15 Stream
5 Fishing
2 Bass, River
0 Illegible
0 Blank
142 Total
13 Different Responses

TURTLE (078)

62 Shell
17 Tortoise
11 Reptile
5 Slowness
4 Hare, Slow, Water
3 Amphibian, Animal
2 Age, Fish, Neck,
Rabbit, Tortise, Tortus
0 Illegible
0 Blank
142 Total
33 Different Responses

TYPEWRITER (048)

31 Paper
11 Keys
9 Ribbon
7 Secretary
6 Machine
5 Theme, Type
4 Letter, Print
3 Homework, Office,
Printing, Themes, Typist
2 Desk, Key, Keyboard,
Manuscript, Report, Stencil,
Thesis, Typing, Write,
Writing
0 Illegible
1 Blank
142 Total
48 Different Responses

VINE (087)

71 Grape
21 Grapes
16 Ivy
6 Wine
3 Robe
2 Bush, Fruit, Plant, Tree
1 Illegible
0 Blank
142 Total
25 Different Responses

Table G-1 Continued

WAFFLE (047)

54	Pancake
22	Breakfast
21	Iron, Syrup
11	Food
3	Batter
2	Hot Cake
0	Illegible
1	Blank
142	Total
14	Different Responses

WATCH (038)

58	Time
41	Clock
21	Wrist
2	Band, Chain, Look, Timepiece
0	Illegible
0	Blank
142	Total
21	Different Responses

WATER (004)

25	Drink
24	Glass
18	Lake
13	Thirst
12	Ocean
11	River
5	Liquid, Rain
3	Land
2	Boat, Cold, Sea
0	Illegible
1	Blank
142	Total
31	Different Responses

WEDDING (027)

49	Bride
43	Marriage
11	Ring
5	Bells, Love
3	Cake, Ceremony, Groom
2	Church, Couple, Nuptial, Reception
0	Illegible
0	Blank
142	Total
24	Different Responses

WHALE (022)

33	Fish
27	Mammal
16	Ocean
9	Blubber, Jonah, Sea
7	Harpoon
5	Oil
4	Moby Dick
2	Boat, Harpon, Leviathan, Porpoise, Shark
0	Illegible
1	Blank
142	Total
26	Different Responses

WHISKEY (065)

30	Alcohol
28	Liquor
17	Drink
10	Bourbon
7	Beer
6	Drunk
5	Gin
4	Bottle, Drunkard
3	Bar
2	Beverage, Licquor, Liquer
0	Illegible
0	Blank
142	Total
34	Different Responses

WIDOW (043)

30	Woman
28	Death
21	Widower
15	Husband
7	Wife
6	Spinster
5	Black, Lady

Table G-1 Continued

3	Maid
2	Spider
0	Illegible
2	Blank
142	Total
28	Different Responses

WINDOW (072)

45	Glass
25	Door
20	Pane
8	Sill
7	View
5	House
4	Curtains, Shade
3	Curtain
2	Outside, Room, Screen
0	Illegible
0	Blank
142	Total
27	Different Responses

WOMAN (088)

91	Man
13	Girl
10	Lady
8	Female
3	Mother, Sex
2	Beauty, Dress, Love, Wife
0	Illegible
0	Blank
142	Total
16	Different Responses

WOOL (009)

66	Sheep
19	Sweater
17	Lamb
8	Cotton
5	Clothes, Dress
3	Coat, Material, Yarn
2	Cloth, Skirt
0	Illegible
0	Blank
142	Total
20	Different Responses

WORKER (016)

39	Laborer
18	Labor
12	Factory
7	Job, Man, Work
4	Employee
2	Construction, Helper, Labour, Skilled
0	Illegible
0	Blank
142	Total
51	Different Responses

WORM (070)

24	Fish
16	Earth, Fishing
10	Apple, Ground
9	Dirt
7	Bait, Snake
6	Animal, Insect
5	Book
4	Bird
2	Hook, Silk
0	Illegible
0	Blank
142	Total
32	Different Responses

YOLK (115)

110	Egg
13	Oxen
4	Ox
3	Burden
2	Harness
1	Illegible
1	Blank
142	Total
13	Different Responses

APPENDIX H

JOINT MEANINGFULNESS:
FREE ASSOCIATION NORMS FOR 120 WORD-PAIRS

Joint Meaningfulness

The norms for Joint Meaningfulness (JM) were collected from incoming freshmen during orientation week at Vanderbilt University in September, 1963. The 120 word-pairs were divided into six sets of 20 pairs and each set was presented in a mimeographed booklet. The booklets also contained material for the DV task. The arrangement of words in the JM and DV tasks was counterbalanced so that no subject received the same word in both tasks. Each of the six booklets was presented to 142 students. Of the total of 852 students, 592 were males and 260 were females. The ratio of males to females was similar for all six groups.

The word-pairs were listed in two columns and each pair was followed by a horizontal line on which the student was to write his association. The statement printed on the front of the booklets contained the following instructions:

> "In this test...you will be asked to give associations to pairs of words rather than to single words. On the following pages are 20 pairs of words. Each pair of words is listed nine times. To the right of each pair is a blank space. In the blanks you are to write as many words as you can (up to 9) that bear some relationship to both words in the pair. Following is an example using only three blanks:
>
> horse-wagon ________________
> horse-wagon ________________
> horse-wagon ________________
>
> Three words that could be placed in the blanks are ride, tongue, and carry.

In giving your responses, it is important to attend to both words in the pair and to give only those responses that in some way are associated with both words. Give only those responses that you could justify as relating in some manner to both words. It would, for example, be hard to justify the response of nose to the pair horse-wagon. Some people might associate nose to horse separately, but it is doubtful that anyone would associate nose to wagon separately. The test is that the words might come to mind if you were associating to each word in each pair separately. The relationship between the word pairs and the associates need not be obvious ones, but in each instance you must feel that there is some relationship, however remote, between the words that you write in the blank spaces and both members of each word pair. The associations need not be nouns only. They can be any part of speech--nouns, adjectives, adverbs, and others."

Subjects were given one minute to write as many associations as they could think of (up to 9) for each pair. The experimenter called time at the end of each pair.

The first of the nine responses for each of the 120 pairs was tallied and is presented in Table H-1. Each response hierarchy is based upon a sample of 140 students. The hierarchies are arranged alphabetically by the stimulus word of the pair. "Single" responses, that is, associations given by only one subject, are not listed. The number of single responses given to a particular stimulus word can be calculated by counting the number of different responses listed and subtracting from "Different Responses", since this category has included singles in its tally.

The reliability of the JM task was estimated by randomly dividing the booklets in half and correlating the number of responses given (maximum = 9). The uncorrected reliability coefficient for this correlation between Groups A and B was .95.

For Group A the mean number of responses per word-pair per subject was 5.77. The corresponding mean for Group B was 5.80, and the mean for the combined groups was 5.78. The standard deviation in the number of responses per word-pair per subject for Group A was 1.11 and for Group B was 1.12. For the combined groups the standard deviation was 1.10.

TABLE H-1

JOINT MEANINGFULNESS:

FREE ASSOCIATION NORMS FOR 120 WORD-PAIRS

Word-Pair

ANTLERS - DEER

14 Horns
13 Animal
12 Hunt
11 Head
10 Buck, Trophy
5 Doe
4 Hunting, Stag
3 Horn, Fight, Male
2 Fawn, Points, Rack, Hide, Hunter, Large
0 Illegible
0 Blank
140 Total
54 Different Responses

APE - MONKEY

30 Animal
21 Man
16 Gorilla
9 Jungle
8 Zoo
5 Chimp
4 Animals, Evolution, Chimpanzee
3 Baboon, Mammal, Tree
2 Anthropoid, Primate, Darwin
0 Illegible
0 Blank
140 Total
38 Different Responses

APPLE - PEAR

105 Fruit
11 Tree
9 Peach
3 Jelly
0 Illegible

Word-Pair

APPLE - PEAR (cont.)

0 Blank
140 Total
15 Different Responses

ASH - GIN

16 Party
13 Cotton
7 Whiskey
4 Burn, Vice
3 Wood, Cigarette
2 Bar, Cards, Drink, Burned, Distill, Dry, Fire, Remains, Still
0 Illegible
11 Blank
140 Total
65 Different Responses

ATHLETE - INVALID

16 People
10 Human, Person
8 Body
6 Health, Opposite
5 Injury
3 Ability, Football, Man, Physical
2 Movement, Muscles, Activity, Alive, Humans, Hurt, Legs, Strength, Opposites
0 Illegible
5 Blank
140 Total
61 Different Responses

TABLE H-1 Continued

Word-Pair

AX - HATCHET

45	Chop
30	Cut
15	Tree
14	Wood
5	Murder, Sharp
2	Blade, Head, Butcher
0	Illegible
0	Blank
140	Total
29	Different Responses

BABY - BOTTLE

38	Milk
12	Mother
10	Feed
7	Food
6	Drink, Child
5	Small
4	Crib, Nipple
3	Infant, Mouth, Cry, Suck, Warm
2	Birth, Clean, Formula, Young, Diaper, Youth
0	Illegible
0	Blank
140	Total
41	Different Responses

BALL - GOLF

40	Game
22	Club
14	Sport
7	Hit
6	Play
5	Course
4	Clubs, Tee
2	Iron, Putt, Drive , Putter, Bag
0	Illegible

Word-Pair

BALL - GOLF (cont.)

1	Blank
140	Total
40	Different Responses

BANDIT - THIEF

35	Robber
18	Crook
13	Steal
11	Rob, Robbery
9	Criminal
5	Money
3	Crime, Gun, Jail, Outlaw
2	Bad
0	Illegible
0	Blank
140	Total
36	Different Responses

BANKER - BEGGAR

88	Money
14	Man
5	Person
4	Men, Opposite, People
3	Human
2	Opposit, Society
0	Illegible
0	Blank
140	Total
23	Different Responses

BED - LAMP

53	Read
19	Reading
13	Night
7	Sleep
6	Light
5	Post, Study
4	Book, Room
3	Table
2	Bedroom, Eight

TABLE H-1 Continued

Word-Pair	
BED - LAMP (cont.)	
0	Illegible
0	Blank
140	Total
29	Different Responses
BEE - HONEY	
52	Hive
26	Comb
9	Flower
6	Sweet
4	Bear, Nest
3	Tree, Cone, Food
2	Pollen, Sticky
0	Illegible
0	Blank
140	Total
35	Different Responses
BOAT - LAKE	
42	Water
21	Ski
13	Fish
6	Fishing, Fun, Row
5	Sail, Skiing
4	Ride, Sport
3	Sailing, Swim
2	Drown, Float, Recreation
0	Illegible
0	Blank
140	Total
32	Different Responses
BOY - MAN	
59	Male
9	Growth
6	Brother, Masculine
3	Maturity, Age, Person, Grow
2	Girl, Growing, Son, Males, Youth

Word-Pair	
BOY - MAN (cont.)	
0	Illegible
1	Blank
140	Total
49	Different Responses
BRICK - CLAY	
30	House
17	Building
16	Build
6	Red
5	Kiln, Straw, Mud, Mortar
4	Hard
3	Stone, Fire, Material, Mold
2	Home, Materials, Morter, Cement, Ground, Mason, Earth
0	Illegible
0	Blank
140	Total
40	Different Responses
BUG - INSECT	
17	Spray
11	Crawl
10	Fly
9	Bite
8	Pest
6	Bee, Legs
5	Spider
4	Wings, Beetle, Kill, Ant
3	Wasp, Repellant
2	Biology, Raid, Small, Mosquito, Pests, Repellent, Roach, D.D.T., Flowers, Plant
0	Blank
0	Illegible
140	Total
43	Different Responses

TABLE H-1 Continued

Word-Pair

BULLET - GUN

37	Shoot
17	Kill
11	Fire
7	Death
6	Weapon
4	Hunt
3	Shot, Dangerous, Deadly, Rifle, Metal, Target, Wound
2	Noise, Police, Danger, Firearm, Trigger
0	Illegible
0	Blank
140	Total
45	Different Responses

BUTTER - OIL

22	Grease
19	Fat, Cook
17	Greasy
9	Cooking
7	Margarine, Food
3	Popcorn, Fry
2	Kitchen
0	Illegible
0	Blank
140	Total
40	Different Responses

BUTTERFLY - WORM

23	Cocoon
12	Cacoon
10	Insect, Caterpillar
7	Animal
6	Moth, Change
4	Silk
3	Bug, Caterpiller, Coccoon, Nature, Bird
2	Metamorphasis, Bugs, Larva, Cattipillar, Creatures, Small, Insects, Larvae, Catipillar, Coocoon, Metamorphosis

Word-Pair

BUTTERFLY - WORM (cont.)

0	Illegible
1	Blank
140	Total
49	Different Responses

BUTTON - SHIRT

25	Collar
10	Thread
9	Clothes
8	Pants, Sew
6	Cloth
5	Button Hole, Clothing, Fasten
4	Man
3	Close, Hole, Dress, Tie
2	Blouse, Button-Hole, Boy, White, Pocket, Zipper
0	Illegible
0	Blank
140	Total
49	Different Responses

CAR - AUTOMOBILE

18	Transportation
17	Ride
15	Drive
9	Road
7	Wheels
6	Travel, Gas, Wreck
5	Tire
4	Motor, Wheel
3	Engine, Gasoline, Speed, Tires
2	Vehicle, Highway, Truck
0	Illegible
0	Blank
140	Total
43	Different Responses

TABLE H-1 Continued

Word-Pair

CARPET - WOOL

38 Rug
21 Floor
6 Covering
5 House, Soft, Material
4 Warm
3 Walk, Sheep, Cloth
2 Expensive, Feet, Fabric, Manufacturer, Thick, Warmth
0 Illegible
1 Blank
140 Total
46 Different Responses

CASTLE - HUT

27 Dwelling
24 Home
13 House
9 Abode, Live
5 Shelter
3 People, Money
2 Opposites, Size, Building, England, Feudal, Homes, King
0 Illegible
0 Blank
140 Total
47 Different Responses

CHEESE - MOUSE

65 Trap
12 Eat, Rat
4 Food, Holes, Cat
3 Catch, Hole
2 Bait, Capture, House, Cartoon, Smell
0 Illegible
1 Blank
140 Total
33 Different Responses

CHILD - KID

23 Young
10 Boy
9 Youth, Baby

Word-Pair

CHILD - KID (cont.)

7 Youngster
6 Children, Play
4 Games, Brat, Brother
3 School, Mother, Parents, Fun, Family
2 Girl, Adolescent, Adult, Parent, Slang, Toy, Infant, Same
0 Illegible
0 Blank
140 Total
49 Different Responses

CITIZEN - RESIDENT

13 Town
11 Country
10 Community
9 Vote
8 Person, City
7 State, Voter
6 Live, Home
5 Neighbor
3 House, Nation, American
2 Inhabitant, U.S.A., Owner, Immigrant, Native
1 Illegible
0 Blank
140 Total
48 Different Responses

CITY - TOWN

33 People
18 Village
6 State, Country, Metropolis
5 Government
4 Streets, Population, Street, Mayor
3 Size, Urban
2 Buildings, Live, Noise, Suburb, Traffic, Citizen, Metropolitan

TABLE H-1 Continued

Word-Pair

CITY - TOWN (cont.)

0 Illegible
0 Blank
140 Total
47 Different Responses

CLAW - LOBSTER

19 Crab
15 Pinch
9 Sea
7 Food, Red, Protection
6 Ocean, Animal
4 Shell
3 Appendage, Cut, Fish, Meat, Sharp
2 Hard, Pincher, Eat, Foot, Wepon, Dinner
0 Illegible
0 Blank
140 Total
53 Different Responses

CLOCK - WATCH

119 Time
3 Test
2 Hand, Hands, Work, Jewel
0 Illegible
0 Blank
140 Total
17 Different Responses

CLOSET - STOREHOUSE

35 Clothes
29 Storage
8 Store
6 Warehouse
5 Room
4 Junk, Trunk

Word-Pair

CLOSET - STOREHOUSE (cont.)

3 Boxes, Dark, Broom
2 Keep, Tools, Goods, Pantry, Storeroom, Clothes
0 Illegible
1 Blank
140 Total
43 Different Responses

CLOTHING - STORE

26 Buy
14 Shirt
11 Department
9 Dress
7 Money
6 Clothes
4 People
3 Merchandise, Pants, Apparel, Clerk, Suit, Salesman, Suits
2 Garment, Buying, Cloth, Coat, Hat, Shirts, Shop, Mens
0 Illegible
0 Blank
140 Total
48 Different Responses

CORN - FIELD

28 Farm
13 Crop
11 Grow
10 Plow
8 Plant
6 Farmer
4 Dirt, Tractor
3 Food, Grain, Soil, Stalk
2 Ears, Ground, Scarecrow, Stalks, Planting, Rows, Roots

TABLE H-1 Continued

Word-Pair

CORN - FIELD (cont.)

0 Illegible
0 Blank
140 Total
46 Different Responses

COURT - TENNIS
44 Ball
19 Racket
13 Game
12 Net, Player
9 Play
8 Sport
3 Raquet
2 Clay, Match, Racquet, Balls
0 Illegible
0 Blank
140 Total
24 Different Responses

CROCODILE - ALLIGATOR

43 Reptile
24 Swamp
13 Animal
10 Water
5 Florida, Reptiles, Teeth
4 Jungle, River
3 Animals, Swamps, Dangerous
2 Bite, Leather, Skin, Swim
0 Illegible
0 Blank
140 Total
36 Different Responses

CROWD - MOB

59 Riot
23 People
7 Gang, Violence

Word-Pair

CROWD - MOB (cont.)

4 Group
3 Push
2 Noise, Panic
1 Illegible
0 Blank
140 Total
39 Different Responses

CURRENCY - MONEY

27 Bank
19 Spend
9 Dollar
7 Bills, Cash
6 Coin
5 Buy, Paper
3 Dollars, Finance, Rich, Check
2 Coins, Mint, Change, Economy, Exchange, Pay, Silver, Green
0 Illegible
0 Blank
140 Total
47 Different Responses

DAGGER - KNIFE

23 Stab
20 Kill
14 Blade
12 Sharp
11 Weapon
10 Blood
8 Cut
6 Death, Murder
3 Dangerous, Point
2 Sword, Fight, Wound, Danger
0 Illegible
0 Blank
140 Total
31 Different Responses

TABLE H-1 Continued

Word-Pair

DIAMOND - JEWEL

26	Ring
18	Gem
10	Necklace, Precious
6	Valuable
5	Expensive, Money
4	Jewelry, Stone
3	Value, Wealth, Bracelet, Pearl, Rare, Jem
2	Beautiful, Beauty, Pretty, Rich, Setting, Sparkle
0	Illegible
0	Blank
140	Total
43	Different Responses

DOCTOR - PHYSICIAN

31	Medicine
12	Sickness, Sick
8	Heal
7	Illness, Patient
6	Health, Hospital
5	Nurse
4	Cure, M.D.
3	Help, Medical, Surgeon
2	Father, Shot, Patients
0	Illegible
0	Blank
140	Total
40	Different Responses

DOG - CAT

47	Fight
44	Animal
11	Animals
10	Pet
4	Pets
3	Mouse
2	Food, Animosity, Leash
0	Illegible
0	Blank
140	Total
25	Different Responses

Word-Pair

DREAM - NIGHT

82	Sleep
17	Nightmare
12	Bed
5	Dark
3	Darkness, Day
2	Fantasy, Slumber
0	Illegible
1	Blank
140	Total
21	Different Responses

DUST - BOWL

12	Dirt
7	Midwest
6	Clean, Desert, Football, Dirty
5	Dry, Oklahoma, West, Drought
4	Kansas
3	Clay, Farm
2	Farmer, Cleaning, Cloth, Collect, Mid West, Plains, Texas, Wind, Dish, Game, Hot, Sand, Table
0	Illegible
0	Blank
140	Total
65	Different Responses

EAGLE - BIRD

39	Fly
32	Nest
15	Feather
10	Beak
5	Flight
4	Wings, Egg
3	Bald, Feathers, Hawk
2	Animal, Flying, Nation
0	Illegible
0	Blank
140	Total
28	Different Responses

TABLE H-1 Continued

Word-Pair

EMBLEM - LABEL

11	Tag, Insignia
9	Name
7	Sign
6	Seal, Sticker
5	Coat, Crest
4	Patch
3	Trademark, Badge, Pin, Ensignia
2	Can, Club, Jacket, Bottle, Clothes, Design, Mark, Product, Shirt, Symbol, Title, Uniform
0	Illegible
0	Blank
140	Total
65	Different Responses

ENGINE - STEAM

20	Train
18	Locomotive
15	Power
11	Boat
6	Watt
5	Work
4	Energy, Machine
3	Water, Locomotion, Coal
2	Steamboat, Turbine, Fulton, Combustian, Heat, Ship, Motion
0	Illegible
0	Blank
140	Total
43	Different Responses

FARM - BARN

27	Cow
23	Horse
15	Hay
14	Animals

Word-Pair

FARM - BARN (cont.)

10	Animal
9	Cows
7	Horses
6	Farmer
5	Yard
4	Cattle
3	Silo, Country
2	Chicken, House
0	Illegible
0	Blank
140	Total
24	Different Responses

FIG - LEAF

71	Tree
17	Adam
11	Fruit
8	Plant
3	Adam & Eve
2	Grow, Modesty, Food
0	Illegible
1	Blank
140	Total
30	Different Responses

FISH - TROUT

38	Stream
12	Water
10	Fishing
8	Lake
7	Food
6	River
5	Rod
4	Worm, Hook, Line, Swim
3	Fisherman, Catch, Fly, Pole
2	Boat, Bait, Bass, Brook, Sport, Fin
0	Illegible
1	Blank

TABLE H-1 Continued

Word-Pair

FISH - TROUT (cont.)

140 Total
34 Different Responses

FOOT - SHOE

39 Sock
25 Walk
8 Toe
7 Heel
6 Fit, Size
4 Wear
3 Toes
2 Socks, Sole, Apparel, Person, Salesman, Store, Walking, Cover
0 Illegible
0 Blank
140 Total
42 Different Responses

FRIEND - ENEMY

26 Person
20 People
16 War
6 Foe
4 Fight, Man
3 Acquaintance, Emotion, Good, Russia
2 Ally, Battle, Boy, Opposite, Pal, Opposites, Help, Love
0 Illegible
1 Blank
140 Total
53 Different Responses

GARBAGE - CAN

52 Trash
20 Waste
8 Food
6 Refure
5 Disposal, Truck
3 Collector, Container, Dispose
2 Dirt, Smell, Smelly, Collect
0 Illegible
0 Blank
140 Total
41 Different Responses

Word-Pair

GENIUS - MORON

30 Intelligence
8 Brain
7 Unusual
6 Opposites
5 School
4 Brains, Intellect, People, Abnormal, Opposite, I.Q.
3 Difference, Different, Contrast, Extremes, Mind
2 Ability, Extreme, Freak, Person, Stupid, Unnatural
0 Illegible
0 Blank
140 Total
54 Different Responses

GERM - MICROBE

38 Microscope
24 Disease
16 Small
11 Bacteria
9 Science, Biology
5 Tiny
3 Scientist
2 Virus
0 Illegible
0 Blank
140 Total
32 Different Responses

GIANT - MIDGET

28 Size
24 Circus
10 Freak
8 Opposite
6 Height
5 Contrast
3 Opposites, Abnormal, Person
2 Growth, Man, Odd, Unusual, People, Glands, Deformed, Comparison
0 Illegible

TABLE H-1 Continued

Word-Pair

GIANT - MIDGET (cont.)

0 Blank
140 Total
52 Different Responses

GIRL - SCOUT

18 Cookies, Boy
12 Brownie
8 Camp, Boy Scout
7 Camping
4 Boy-Scout, Green, Young
3 Troop
2 Child, Hike, Person, Uniform, Club, Cook, Duty, Girl Scout, Leader, Organization, Honor, Brownies
0 Illegible
0 Blank
140 Total
52 Different Responses

GLOVE - PEOPLE

72 Hand
8 Hands
5 Baseball, Clothing, Wear, Fingers
4 Warm
3 Cold, Warmth
2 Fit, Handshake, Clothes, Shake
0 Illegible
0 Blank
140 Total
33 Different Responses

GOD - DEVIL

38 Religion
10 Heaven

Word-Pair

GOD - DEVIL (cont.)

8 Hell
7 Bible
5 Good
4 Power
3 Opposite, Evil, Theology, Conflict, Sin, Powerful
2 Eternity, Man, Opposites, Spiritual, Christian, Fear, Enemies, Influence, Spirit, Belief
0 Illegible
1 Blank
140 Total
51 Different Responses

GOOSE - DUCK

24 Bird
17 Fowl
8 Animal, Hunt
7 Water, Fly
6 Gander
4 Hunting, Birds, Feathers, Feather, Swim
3 Animals, Poultry, Dinner
2 Quack, Bill, Chicken, Farm, Food, Gun, Lake, Pond, Waddle
0 Illegible
0 Blank
140 Total
40 Different Responses

GRAPE - VINE

38 Wine
13 Fruit
10 Grow
9 Plant
6 Gossip, Vineyard

TABLE H-1 Continued

Word-Pair

GRAPE - VINE (cont.)

4 Leaf
3 Stem, Vinyard
2 Arbor, Growth, Smoke, Tree, Food, Jelly, Juice, Orchard, Cling
0 Illegible
0 Blank
140 Total
46 Different Responses

GUN - TRIGGER

37 Shoot
18 Bullet
16 Rifle
11 Pull
8 Fire
6 Kill
3 Shot, Weapon
2 Pistol, Happy, Shotgun, Murder, Stock
0 Illegible
0 Blank
140 Total
40 Different Responses

HAMMER - SAW

31 Carpenter
24 Tool
22 Tools
15 Wood
14 Build
7 Work
3 Cut, Nail
2 Nails, Workshop, Construction
0 Illegible
0 Blank
140 Total
26 Different Responses

Word-Pair

HAND - FINGER

22 Ring
15 Arm
9 Thumb, Body
7 Nail
5 Glove
4 Bone, Wrist
3 Hold, Feel, Gun, Point, Skin, Write, Nails
2 Limb, Flesh, Part, Animal
0 Illegible
0 Blank
140 Total
55 Different Responses

HARBOR - SHIP

19 Water
18 Port
16 Dock
15 Boat, Ocean
6 Sea
4 Light, Anchor, Boats
3 Sail
2 Wharf, Safety, Travel, Tug, Cargo, Lights
0 Illegible
0 Blank
140 Total
41 Different Responses

HAT - COAT

16 Clothing, Clothes
11 Tie, Rack
10 Cold
8 Rain
7 Winter
5 Gloves
4 Closet, Protection, Apparel

TABLE H-1 Continued

Word-Pair

HAT - COAT (cont.)

3	Weather, Garments, Suit
2	Shoes, Cover, Travel, Glove, Man, Umbrella
0	Illegible
0	Blank
140	Total
43	Different Responses

HEAD - ORGAN

50	Body
25	Brain
5	Ears, Eyes, Music
4	Eye
3	Noise, Nose
2	Church, Heart, Vital, Mouth
0	Illegible
0	Blank
140	Total
46	Different Responses

HOUR - MINUTE

78	Time
33	Second
16	Clock
3	Day, Watch
0	Illegible
0	Blank
140	Total
12	Different Responses

JAIL - PRISON

23	Criminal
19	Prisoner
14	Crime
13	Convict
8	Bars
7	Punishment

Word-Pair

JAIL - PRISON (cont.)

6	Cell
4	Law
3	Crook
2	Confinement, Inmate, Wardon, Bar, Guard, Incarcerate
0	Illegible
0	Blank
140	Total
45	Different Responses

JUSTICE - PEACE

49	Law
12	Judge
10	Marriage
4	Government, Lawyer
3	Laws, Court, Freedom, Marry
2	Necessary, Right, War, Tranquility, Officer, Friendship, Liberty
0	Illegible
0	Blank
140	Total
49	Different Responses

KING - GOVERNOR

52	Ruler
15	Rule
9	Government
8	Leader
7	President
5	Power, Authority
2	Kennedy, State, Official
0	Illegible
0	Blank
140	Total
43	Different Responses

TABLE H-1 Continued

Word-Pair

LETTUCE - TOMATO

49	Sandwich
32	Salad
13	Vegetable
12	Food
7	Bacon
5	Vegetables
3	Sandwhich, Sandwitch
2	Salid, Hamburger, Edible
0	Illegible
0	Blank
140	Total
22	Different Responses

LIBRARY - BOOK

43	Read
15	Librarian
12	Reading
8	Study
5	School, Shelf
3	Borrow, Fine, Overdue, Shelves, Card, Reference
2	Volume, Catalogue, Learn, Information, Volumes, Knowledge, Paper
0	Illegible
0	Blank
140	Total
39	Different Responses

LION - TIGER

30	Jungle
23	Animal
15	Cat
10	Zoo
5	Cats
4	Animals, Ferocious, Africa, Fierce, Panther
3	Beast, Dangerous, Leopard
2	Tamer, Circus, Hunter

Word-Pair

LION - TIGER (cont.)

0	Illegible
0	Blank
140	Total
38	Different Responses

LIP - BACON

48	Eat
12	Food
9	Chew
8	Taste
6	Meat, Mouth
5	Fat
4	Pig
3	Flesh
2	Consume, Breakfast, Teeth, Burn
0	Illegible
6	Blank
140	Total
35	Different Responses

LIZARD - REPTILE

37	Snake
10	Crawl
8	Animal
7	Alligator
5	Scale
3	Amphibian, Cold, Scales, Green, Slimy
2	Ground, Prehistoric, Scaly, Class, Desert, Family, Frog, Salamander
0	Illegible
0	Blank
140	Total
60	Different Responses

TABLE H-1 Continued

Word-Pair

LUNATIC - FOOL

37	Idiot
16	Crazy
9	Stupid
7	Moron
6	Asylum, Insane
5	Nut, Silly
3	Imbecile, Person
2	Crasy, Dope, Madman, Man, Mind, Dumb, Sorry, Maniac
0	Illegible
0	Blank
140	Total
45	Different Responses

MILK - MAID

31	Cow
12	Farm
6	Bucket
5	Serve
4	White, Kitchen, Stool,
3	Dairy, Cook, Breakfast, Service, Girl
2	Bottle, Drink, Man, Holland, Pail, Pitcher, Servant, Pour, Home, Helpful, Butter, Useful
0	Illegible
1	Blank
140	Total
57	Different Responses

MINNOW - WHALE

43	Fish
42	Water
10	Ocean
9	Swim
7	Opposite
6	Size
3	Contrast
2	Bait, Fin, Sea, Tail, Large
0	Illegible
0	Blank
140	Total
22	Different Responses

MOON - STARS

44	Sky
23	Night
12	Astronomy
9	Sun
8	Space
6	Universe
4	Celestial, Galaxy
3	Heavens, Universal, Planets
2	Love, Light, Telescope, Planter
0	Illegible
0	Blank
140	Total
29	Different Responses

MORNING - DAWN

36	Sun
19	Sunrise
17	Early
8	Day
5	Dew
3	Sleep, Awake, Beginning, Daybreak, Rise, Night
2	Arise, Sun-Rise, Awakening, New
0	Illegible
0	Blank
140	Total
44	Different Responses

TABLE H-1 Continued

Word-Pair

MOTHER - SISTER

25	Family
18	Female
16	Woman
9	Brother, Women
8	Love
7	Girl
6	Females, Relatives
5	Father, Daughter
3	Relative, Aunt, Relationship
2	Related, People
0	Illegible
0	Blank
140	Total
27	Different Responses

MOUNTAIN - HILL

23	Valley
18	Climb
10	Trees
7	High
5	Mole, Height
3	Forest, Land, Range, Slope Steep
2	Grass, Incline, Rises, Size, Peak, Rise, Clift, Knoll, Earth, Elevation
0	Illegible
0	Blank
140	Total
58	Different Responses

NEEDLE - RECORD

30	Phonograph
29	Music
22	Play
7	Scratch
5	Stereo, Player, Sound
4	Hi-Fi, Record Player
3	Groove
2	Diamond, Song, Album, Victrola

Word-Pair

NEEDLE - RECORD (cont.)

0	Illegible
0	Blank
140	Total
32	Different Responses

OCEAN - SEA

37	Water
28	Ship
20	Fish
6	Lake
5	Salt
3	Deep, Bay, Beach, Boat, Shore, Wave, River
2	Sand, Ships, Waves Roar
0	Illegible
0	Blank
140	Total
31	Different Responses

ORANGE - FRUIT

25	Tree
17	Citrus
11	Juice, Eat
9	Breakfast, Apple
8	Food
7	Florida
4	Sweet, Grapefruit
3	Good
2	Acid, Seeds, Bowl, Lemon
0	Illegible
0	Blank
140	Total
39	Different Responses

OYSTER - SHELL

35	Pearl
30	Ocean, Sea
6	Food, Clam
3	Beach

TABLE H-1 Continued

Word-Pair

OYSTER - SHELL (cont.)

2 Hard, Sand, Muscle, Pearls
0 Illegible
0 Blank
140 Total
32 Different Responses

PAINT - BRUSH

18 House
14 Artist
12 Painter
10 Painting, Picture
9 Wall, Color
6 Art
5 Work
4 Clean, Paint, Can
3 Canvas, Decorate
2 Bristles, Colors, Cover, Sign, Walls
0 Illegible
0 Blank
140 Total
38 Different Responses

PAPER - PENCIL

54 Write
24 Pen
19 Writing
9 Test
5 School
4 Letter, Desk
3 Theme
2 Work
0 Illegible
0 Blank
140 Total
24 Different Responses

Word-Pair

PEARL - NECKLACE

34 Jewelry
19 Neck
7 Beads
5 Wear
4 White, Jewels, Woman, Ring
3 Pretty, Girl, String, Jewel, Dress
2 Beauty, Clasp, Jewlry, Bracelet, Jewerly, Gift, Ornament, Oyster, Throat, Diamond, Jewlery, Round
0 Illegible
0 Blank
140 Total
45 Different Responses

PEN - INK

75 Write
27 Paper
6 Writing
5 Pencil
4 Letter
2 Black, Letters, Desk, Table
0 Illegible
0 Blank
140 Total
24 Different Responses

POT - PAN

41 Cook
30 Kitchen
17 Food
7 Stove
4 Cooking, Dishes, Dish
3 Fry, Utencil, Wash, Utensils

TABLE H-1 Continued

Word-Pair

POT - PAN (cont.)

2	Container, Eat
0	Illegible
0	Blank
140	Total
31	Different Responses

PRIEST - MINISTER

53	Church
31	Religion
15	God
8	Pastor
4	Preacher
3	Clergy
2	Bible, Father, Rabbi, Worship, Preach, Sermon
0	Illegible
0	Blank
140	Total
26	Different Responses

RADIO - TELEVISION

15	Entertainment
12	Communication
9	Electronics
7	Sound
6	Announcer, Music
5	Tubes
4	Program, Listen, Entertain
3	Star, Appliance, Noise, Electricity
2	Electronic, Hear, Aerial, News, Antenna
0	Illegible
1	Blank
140	Blank
64	Different Responses

Word-Pair

RAIN - BOW

21	Color
11	Colors
8	Storm
6	Pretty, Sun, Rainbow, Sky
5	Gold, Water
4	Clouds
3	Flood, Spectrum, Rain, Wet, Cloud
2	Nature, Promise, Coat, Shower, God, Unbrella
0	Illegible
3	Blank
140	Total
49	Different Responses

RIVER - BRIDGE

53	Water
26	Cross
7	Boat
5	Car, Crossing, Stream
3	Lake, Span
2	Ford, Transportation, Creek
1	Illegible
0	Blank
140	Total
37	Different Responses

ROOM - CEILING

46	Wall
26	Floor
12	Paint
10	House
9	Light
5	Roof
3	Chandelier, High, Walls, Plaster

TABLE H-1 Continued

Word-Pair

ROOM - CEILING (cont.)

2	Color, Enclosure, Corner, Top
0	Illegible
0	Blank
140	Total
26	Different Responses

ROSE - THORN

45	Bush
19	Flower
9	Plant
7	Stem
6	Prick
4	Garden, Hurt, Stick
3	Beauty, Life, Red
2	Sticker, Pretty, Vine, Protection, Scratch, Sharp
0	Illegible
0	Blank
140	Total
38	Different Responses

SAINT - SINNER

21	God
20	Religion, Church
6	Heaven, Human, Sin
5	People
3	Good, Morals, Men, Person, Bible
2	Opposite, Right, Deeds, Extremes, Morality
0	Illegible
0	Blank
140	Total
48	Different Responses

Word-Pair

SALT - PEPPER

36	Shaker
30	Seasoning
29	Food
8	Season
7	Spice
6	Table
4	Shakers
3	Eggs, Spices
2	Condiment, Eat, Sugar
0	Illegible
0	Blank
140	Total
20	Different Responses

SHEEP - MEADOW

35	Grass
26	Graze
17	Farm
7	Pasture
5	Field
4	Grazing, Shepherd
3	Food
2	Cow, Eat, Herd, Peaceful, Hills
0	Illegible
0	Blank
140	Total
42	Different Responses

SINK - KITCHEN

41	Dishes
16	Wash
10	Water
9	Food, Drain
7	Clean
6	Dish, Stove

TABLE H-1 Continued

Word-Pair

SINK - KITCHEN (cont.)

4	House, Work
3	Faucet
2	Cabinet, Washing
0	Illegible
0	Blank
140	Total
34	Different Responses

SNAKE - PIT

19	Danger
12	Dangerous
11	Death
8	Viper
5	Fear
4	Trap, Ground, Hole, Horror
3	Evil, Bite, Zoo, Reptile
2	Asylum, Cobra, India, Posion, Torture
0	Illegible
1	Blank
140	Total
61	Different Responses

SOAP - WATER

50	Wash
27	Clean
26	Bath
8	Dirt
2	Face, Shower, Suds, Cleanse
0	Illegible
0	Blank
140	Total
19	Different Responses

Word-Pair

SOLDIER - RIFLE

63	War
23	Army
12	Shoot
8	Kill
6	Gun
3	Carry
2	March, Battle, Weapon, Milatary
0	Illegible
0	Blank
140	Total
28	Different Responses

SPIDER - WIDOW

56	Black
16	Poison
5	Web, Death, Insect
4	Alone, Legs
3	Bug, Old
2	Danger, Deadly, Animal, Female, Lonely
0	Illegible
3	Blank
140	Total
41	Different Responses

STAMP - ENVELOPE

57	Letter
51	Mail
9	Lick
4	Address
3	Post Office, Send
2	Paper, Postage
0	Illegible
0	Blank
140	Total
17	Different Responses

TABLE H-1 Continued

Word-Pair

STEP - BROTHER

21	Sister
10	Mother
7	House
6	Home
5	Family, Father
3	Divorce, Half, Relative, Stepfather, Walk, Foster
2	Careful, Kin, Person, Fall, Foot, Friend, Hate, Marriage, Useful, Step-Father, Step-Sister
0	Illegible
5	Blank
140	Total
57	Different Responses

STOVE - COFFEE

23	Heat
20	Pot
19	Hot
15	Cook
7	Boil, Kitchen, Food
6	Breakfast, Morning
5	Brew
2	Warmth, Make
1	Illegible
0	Blank
140	Total
32	Different Responses

STREET - ROAD

35	Car
13	Highway
10	Avenue
6	Drive, Travel
5	Sign, Transportation
4	Cross, Pavement
3	City, Gravel, Town, Way
2	Asphalt, Cars, Light, Route

Word-Pair

STREET - ROAD (cont.)

0	Illegible
0	Blank
140	Total
48	Different Responses

SUMMER - CHURCH

18	Hot
11	School
10	Sunday
8	Camp
6	Vacation
3	Picnic, Winter, Go, Bible School
2	Warm, Warmth, Worship, Absence, God, People, Vespers, Flowers, Morning
0	Illegible
2	Blank
140	Total
71	Different Responses

THUNDER - STORM

62	Rain
40	Lightning
10	Lightening
4	Loud
3	Weather, Clouds, Noise
2	Cloud, Dark
0	Illegible
0	Blank
140	Total
20	Different Responses

TABLE H-1 Continued

Word-Pair	
TOBACCO - SMOKE	
50	Cigarette
19	Cigar
11	Pipe
9	Cancer
7	Cigarettes
3	Cigarett, Habit, Nicotine
2	Cough, Cigars, Cigarrette
0	Illegible
0	Blank
140	Total
40	Different Responses
TURTLE - RABBIT	
54	Race
32	Animal
16	Animals
6	Speed
3	Fable, Feet
2	Forest, Slow
0	Illegible
0	Blank
140	Total
29	Different Responses
TYPEWRITER - RIBBON	
30	Type
23	Ink
11	Paper
9	Print
6	Keys
5	Letter
4	Black, Write
3	Key, Words, Secretary
2	Letters, Red, Blue
0	Illegible
0	Blank
140	Total
44	Different Responses

Word-Pair	
WAFFLE - SYRUP	
38	Breakfast
25	Food
17	Eat
15	Pancakes, Pancake
14	Butter
3	Delicious
2	Good, Iron
0	Illegible
0	Blank
140	Total
19	Different Responses
WEDDING - RING	
78	Marriage
12	Bride
10	Love
5	Ceremony
4	Groom
3	Husband
2	Engagement, Finger, Married, Girl, Woman
0	Illegible
0	Blank
140	Total
30	Different Responses
WHISKEY - PARTY	
33	Drunk
28	Drink
18	Fun
6	Drinking
5	Booze
4	Beer, Fraternity
3	Drunks
2	Cocktail, Drinks, Brawl, Drunkenness, Scotch, People
0	Illegible
0	Blank
140	Total
41	Different Responses

TABLE H-1 Continued

Word-Pair	
WINDOW - FROST	
35	Cold
32	Winter
10	Pane
7	Snow
4	Outside
3	Clear, Weather
2	Glass, See, Ice, White, Write
0	Illegible
2	Blank
140	Total
44	Different Responses
WOMAN - SKIRT	
32	Dress
21	Blouse
15	Clothes
9	Clothing
8	Pretty
6	Legs
5	Short
4	Feminine
3	Girl, Tight
2	Beauty, Female, Knee
0	Illegible
1	Blank
140	Total
39	Different Responses

Word-Pair	
WORKER - LOAFER	
21	Job
8	Opposite
7	Man
5	Lazy, Employee, Labor, Person, Pay
4	Laborer, People
3	Contrast, Ambition, Men, Union, Work
2	Energy, Time, Business, Construction, Factory, Money, Opposites
0	Illegible
1	Blank
140	Total
65	Different Responses
YOLK - EGG	
43	Chicken
14	Food
13	Breakfast, White
12	Shell
7	Yellow
4	Hen
3	Eat, Cook
2	Fry, Cooking, Protein, Runny
0	Illegible
0	Blank
140	Total
33	Different Responses